



CHECK LIST OF THE FISHES OF THE DOMINION OF CANADA AND NEWFOUNDLAND

Division of Fishes
U. S. National Museum
JAN 18 1945

Check List of the Fishes of
the Dominion of Canada and
Newfoundland.

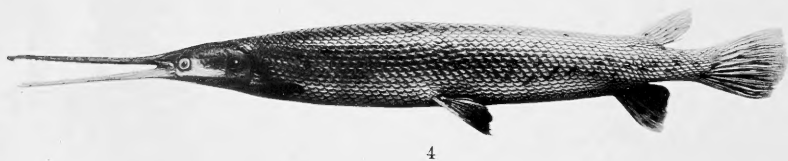


PLATE I.

1. *Sphenus acanthias* (Pickel Dogfish)
2. *Haja rostrata* (Starry Ray)
3. *Leptorhynchus tenuirostris* (Common Stingray)
- 4-5. *Leptorhynchus ocellatus* (Common Gulper)
- 6-7. *Urolophus hutchingsi* (Bowfin)

PLATE I.

1. *Squalus acanthias* (Picked Dogfish)
2. *Raja radiata* (Starry Ray)
3. *Acipenser sturio oxyrhynchus* (Common Sturgeon)
- 4-5. *Lepidosteus osseus* (Common Garpike)
- 6-7. *Amia calva* (Bowfin)

CHECK LIST
OF
The Fishes of the Dominion of Canada
AND
Newfoundland

By ANDREW HALKETT
Naturalist, Department Marine and Fisheries

Illustrated by 14 Plates



OTTAWA
PRINTED BY C. H. PARMELEE, PRINTER TO THE KING'S MOST
EXCELLENT MAJESTY
1913.



117
H17

TABLE OF CONTENTS

	PAGES
Introductory Remarks....	7- 10
Scheme of Classification..	11-37
Check List....	38-116
Addenda....	117
Glossary of Technical Terms	118
Index to Technical Names..	119-130
Index to Vernacular Names....	131-138

INTRODUCTORY REMARKS

This publication is a check-list of the Fishes of British North America. Its aim is to give the species indigenous to the Dominion of Canada and Newfoundland, as well as those of the Fishing Banks beyond the three mile limit. A complete list of the fishes of Canada has long been a desideratum, and it is hoped that the present work will help to obviate that need. It should, however, be looked upon as a pioneer, heralding the way towards a fuller specific conception of our fishes and their distribution. There are records of specimens which are provisionally admitted in the list as distinct species, having been recorded so, which in reality may belong to species already known, and an endeavour is made to point out those doubtful records, which happily are not over numerous, in foot-notes. As regards the better known, and more commercially important kinds, the check-list may, in giving their range, more repletely serve its purpose; but even in a few of these the limits of their range, especially in the far north, and owing to confusion in their records and synonyms, are hard to determine. Records of certain specimens are possibly sometimes wrongly named by the recorders, and would therefore appear, had they been rightly named, under the species to which they really belong; although in some such cases the localities in which they were found may be included through other records. Species which occur close to our borders, or both north and south of our borders, although not actually recorded from our waters are also provisionally admitted; and this appears justifiable, because the late Rev. G. W. Taylor was constantly bringing to light species occurring in British Columbia which hitherto had not been recorded; and furthermore, researches have revealed species along our Atlantic sea-coast, and in the fresh waters of the Dominion, which formerly were not recorded north of the United States boundary. There are also some interesting records of casual visitors, such as the tarpon (*Tarpon atlanticus*) in Nova Scotia; and the occurrence of species very rare in Canada, such as the paddle-fish (*Polyodon spathula*) in Helen Lake, Nipigon River, and elsewhere in the Canadian Great Lakes region. The list of the fishes, especially the fresh water fishes, of Newfoundland is admitted to be inadequate. There appear to be no published records of the species of that colony (save a list of 'The Fishes of Labrador,' by William Converse Kendall), yet as one third of the island of Newfoundland is covered with water some interesting finds may in the future be looked for. Some remarkable and diverse forms, indigenous to the Banks of Newfoundland and to the Banks off Nova Scotia have been obtained on these fishing grounds, or have followed vessels into the harbours and ports from there, and it has been thought fitting to include such in the list.

Canada has its own particular species of fishes—that is species which do not occur, or have not been found, in the waters of any other country; and one of them, of which there is only one specimen known, recently discovered, is the type of a new genus (*Asenichthys*). The names of the species peculiar to Canada, with the localities where they occur, appear in their places in the body of the text. Contrariwise there is scarcely a sea on the surface of the globe in which there does not occur some fish which also occurs, or has occurred, on the coasts of Canada.

The check-list, of course, is not descriptive; but is simply, it is hoped, what it purports to be. It is a pioneer, feeling its way towards a better knowledge of what species of fishes inhabit the waters of the British North American possessions—especially those indigenous to Canada. It does not profess to be a complete list, but it is confidently believed to approximate the total number of fishes which our waters contain. It is subject to amendment then, in regard to species to be added to the list as records or discoveries reveal them; and not only so, but in regard to species, and such are apparently few, to be eliminated from the list as having no right there.

As the list stands there are 569 species including sub-species (3 being in addenda), and they follow each other consecutively, and in systematic order, from the cyclostomes to the plectognaths: the families and orders under which they are placed appearing in a preceding scheme of classification. The technical name, governed by the rules of priority; the vernacular name, when the fish has one (and the majority of our fishes bear vernacular names); the environment, concisely; and the geographical distribution of each fish are given.

The check-list is based on all the available literature on the subject, and on my own personal observations in many parts of the Dominion; as well as in an examination of specimens in the museum. In its preparation a vast amount of material has been consulted. I am under inestimable obligation to Drs. Jordan and Evermann. Their great work on 'The Fishes of North and Middle America' in four massive volumes has been indispensable, and I am indebted to them for the settlement of priority of names. I adhere, however, to British ichthyologists where a matter of orthography is concerned—as *Lepidosteus* instead of *Lepisosteus* and *Hyodon* instead of *Hiodon*. Besides the great work of those authorities referred to, I have received much help from their 'American Food and Game Fishes,' and from Dr. Jordan's 'Guide to the Study of Fishes' in two volumes.

Many lists and records of the fishes of Provinces and localities have been diligently compared, and in respect to such valuable aid has been afforded me by individual students of the fishes of special localities.

To Mr. Harry Piers, Curator of the Provincial Museum of Nova Scotia, I am indebted not only for copies of his annual reports which contain accounts of fishes of Nova Scotia, and for records of the occurrence of *Chilomycterus schaeppi* and *Mola mola* in that Province, but also for the loan of the following lists which are now out of print.

'Fishes of Nova Scotia,' 1866, by Thomas F. Knight.

'List of the Fishes of Nova Scotia,' 1879, by J. Matthew Jones.

'Nova Scotian Ichthyology,' 1885-6, by Dr. Honeyman.

To Dr. Phillip Cox, of Fredericton University, I owe a great deal, not only for the valuable aid which his 'Catalogue of the Marine and Fresh-water Fishes of New Brunswick' and his 'List of Fresh-water Fishes of the Gaspé Peninsula' have afforded me, but I am additionally indebted to him for kindly going over my manuscript in regard to the fishes of New Brunswick.

Gratefully do I acknowledge the favours of the late Rev. G. W. Taylor, formerly the Curator of the Biological Station at Departure Bay, Vancouver Island. In personal interviews and in correspondence he did me great service, and he had the kindness to review a provisional manuscript list of the fishes of British Columbia which I drew up for his perusal. It may be mentioned too that Mr. Taylor kindly volunteered to allow me to incorporate into my list, a list of the fishes of British Columbia, which he himself had in course of preparation, but unfortunately his death intervened and the list has never appeared. In regard to the fishes of British Columbia, I am also indebted to Mr. Francis Kermode, Curator of the Provincial Museum, Victoria, who kindly had a list of the fishes in the museum type-written for me, and who also sent me a copy of his published report which contains a list of the fishes in that collection. To him I am further indebted for getting a very young specimen of *Catulus brunneus*, through Dr. Gilbert of Leland-Stanford Junior University, identified.

The following lists and publications have been of great service:

'Food and Game Fishes of North America,' by the deceased Dr. G. Brown Goode.

'Check-list of the Fishes of Ontario,' by Mr. C. W. Nash, Lecturer on Biology for the Ontario Department of Agriculture.

'Notes on the Fishes of Canso,' and 'Notes on Fishes of Tignish, Prince Edward Island,' by Mr. G. A. Cornish, of Toronto University.

'The Fishes of Labrador,' by Mr. W. C. Kendall, of the United States Fish Commission.

'A Check-list of the Fresh-water Fishes of Canada,' by Evermann and Goldsborough.

'Fauna of the Atlantic Coast of Canada,' by Dr. Joseph Stafford, in which mention is made of fishes occurring at Gaspé.

Notes on the Fishes of Lake Ontario, of Lake Champlain, and of the St. Lawrence River, by Evermann and Kendall.

Catalogue of Fishes, &c., exhibited by the Department of Marine and Fisheries at the Colonial and Indian Exhibition, by the deceased Dr. J. F. Whiteaves.

Prof. Ramsay Wright's 'Preliminary Report on the Fish and Fisheries of Ontario' was of service; and 'List of Manitoba Fishes' by Dr. E. E. Prince, was of use as showing species which occur in Manitoba, but no localities are given.

The following British publications have been of great service, generally as showing the distribution of fishes, which occur in Canada, at the coasts of other lands, or in the open ocean.

'History of British Fishes,' 1859, in two volumes, by William Yarrell.

'An Introduction to the Study of Fishes,' 1880, by Dr. Albert Günther.

'The Cambridge Natural History': volume VII—'Fishes'—in part by Dr. T. W. Bridge, of Trinity College, Cambridge, and in part by Dr. G. A. Boulenger, of the Zoological Department of the British Museum.

'Catalogue of the Perciform Fishes in the British Museum' by Dr. Boulenger.

'The Fishes of Porto Rico,' by Evermann and Marsh, published in a Bulletin of the United States, was of similar service concerning the occurrence of certain species at that island.

To Dr. L. Hussakof of the American Museum of Natural History I am indebted for a diagnosis of different species of *Myxine*, with whom I corresponded on the subject. The diagnosis is from 'A Revision of the Myxinoids of the Genus *Myxine*,' by Mr. C. Tate Regan, of the British Museum.

I have also to mention aid received through Mr. Alex. Finlayson, Inspector of Hatcheries for the Dominion, whose acquaintance with many of our fishes, especially of our commercial fishes, is very thorough, in the determination of one or two specimens which were not readily recognizable owing to the effects of the preservatives in which they had been kept; and last, but by no means least, it affords me great pleasure to express my appreciation of the hearty interest shown to me by Mr. W. A. Found, Superintendent of Fisheries, during the time when the check-list was being prepared, and for his patience in awaiting its forthcoming.

A few words concerning the scheme of classification referred to above. In the present state of ichthyological knowledge a certain latitude may be allowable, and I may therefore be pardoned for venturing to arrange families and higher groups provisionally in such a way as for the present best appears to suit myself. The Cyclostomata naturally divide into two orders, the names here used for these being—Myxinoides (Hagfishes) and Petromyzontes (Lampreys). Being unready, as some do, to regard the Plagiostomi (Sharks and Rays) and the Holocephali (Chimæras) as distinctive sub-classes, I combine them in a single sub-class—Elasmobranchii, of which the two former are orders. I follow Hasse in sub-dividing the Plagiostomi according to the structure of the vertebræ. These divisions I regard as sub-orders. The names Selachii and Batoidei (save that the former by some is the name employed for the entire sub-class, which is then properly equivalent to Elasmobranchii) I discard, for the reason that the transition from the more primitive sharks through the tectospondylous sharks to the saw-fishes and more specialized rays, seems to be so marked as to preclude their sub-division in a way which cannot but be other than artificial; especially as the more natural sub-order Tectospondyli includes forms which it is usual to place with the Selachii on the one hand (although none

such are represented in our waters) and with the Batoidei on the other. Discarding the name Ganoidei as untenable, I innovate the classification of the Teleostomi by dividing them primarily into two super-orders—Chondrostei and Teleostei. There is a closer relationship between the Holostei (Gar-pikes and *Amia calva*) in many essential particulars and the Teleostei, as recognized, than there is between the former and the Chondrostei. Therefore I include the Holostei as an order in the Teleostei. The two names to be sure signify much the same thing, but Holostei may stand as the name of the most primitive order of the super-order. Conformity to system requires an order in the super-order Chondrostei, although the super-order and order embrace the same. This I give as Acipenseroidei (the paddle-fish and the sturgeons). The super-order Teleostei, thus understood, contains XV orders (only two of which, Symbranchii and Opisthomi, are not represented in Canada) and I follow Boulenger in their names and arrangement, except that with him these orders (saving Holostei—here included in Teleostei) are sub-orders, and the super-order—Teleostei—an order; and his *divisions* of the Acanthopterygii I regard as sub-orders. Quotations from Boulenger given as foot-notes in the scheme of classification are intended as explanatory as to why I adopt his classification. In sub-dividing orders into families and genera, I have in substance been guided by Jordan and Evermann, and in the names of the species I essentially follow them; for their assiduity in having determined the priority of the names of the fishes of the continent of North and Middle America is obvious and manifest, and speaks for itself. Certain names employed by Jordan and Evermann, not always with them equal in rank, I have moreover adopted as sub-orders of some orders.

The check-list is followed by a brief glossary of technical terms, and indices of technical and vernacular names; and the work is illustrated with 14 plates, from photographs of mounted specimens and casts in the Canadian Fisheries Museum.

ANDREW HALKETT,

Naturalist, Department Marine and Fisheries.

Canadian Fisheries Museum,

OTTAWA, Canada, 1913.

SCHEME OF CLASSIFICATION

CLASS PISCES (FISHES)

Sub-class I *Cyclostomata* (Hagfishes and Lampreys). Also known as Cyclostomi, and as Marsipobranchii.

ORDER I MYXINOIDES (Hagfishes). Also known as Hyperotreti.

Family I Myxiniidae.

Genus 1 Myxine

limosa 1 (American Hagfish)

Family II Eptatretidae

Genus 2 Polistotrema

stouti 2 (California Hagfish)

ORDER II PETROMYZONTES. (Lampreys). Also known as Hyperoartii

Family III Petromyzonidae

Genus 3 Petromyzon

marinus 3 (Great Sea Lamprey)

unicolor 4 (Landlocked Lamprey)

Genus 4 Ichthyomyzon

concolor 5 (Silver Lamprey)

castaneus 6 (Northern Lamprey)

Genus 5 Entosphenus

tridentatus 7 (Three-toothed Lamprey)

Genus 6 Lampetra

aurea 8 (Brook Lamprey)

cibaria 9 (Brook Lamprey)

wilderi 10 (Small Black Lamprey: Brook Lamprey)

Sub-class II *Elasmobranchii* (Sharks, Rays, and Chimeras). Also known as Selachii and as Chondropterygii.

ORDER III PLAGIOSTOMI (Sharks and Rays)

SUB-ORDER 1 DIPLOSPONDYLI. (Plagiostomes in which the centra are imperfectly segmented, and joined in pairs, and each pair bearing two neural arches.)

Family IV Hexanchidae.¹ Known also as Notidanidae.

Genus 7 Notorhynchus

maculatus 11 (Cow Shark)

Genus 8 Hexanchus

corinus 12 (Shovel-nosed Shark)

SUB-ORDER 2 ASTEROSPONDYLI. (Plagiostomes in which the calcification of each centrum in cross section radiates star-like from the central axis.)

Family V Scylliorhinidae. Scylliidae in part of some.

Genus 8a Scylliorhinus

profundorum 12a (Roussette). See addenda p. 117

Genus 9 Catulus

brunneus 13 (Cat Shark: Swell Shark)

¹Although this family contains sharks which have 7 gill apertures on either side, *Hexanchus* has priority over *Notidanus*, and the name of the family should conform to that of the typical genus.

Family VI Galecidae. Carchariidae in part of some.

Genus 10 Galeorhinus
zyopterus 14 (Oil Shark: Tope)

Genus 11 Prionace
glauca 15 (Great Blue Shark)

Family VII Alopiidae. Included in Lamnidae by some.

Genus 12 Alopias
vulpes 16 (Thresher)

Family VIII Lamnidae

Genus 13 Lamna
cornubica 17 (Porbeagle: Mackerel Shark)

Genus 14 Carcharodon
carcharias 18 (Great White Shark)

Family IX Cetorhinidae

Genus 15 Cetorhinus
maximus 19 (Basking Shark)

SUB-ORDER 3 CYCLOSPONDYLI. (Plagiostomes in which the calcification of each centrum in cross section forms a ring around the axis.)

Family X Squalidae. Spinacidae in part of some.

Genus 16 Squalus
acanthias 20 (Picked Dogfish)
sucklii 21 (California Dogfish)

Genus 17 Centroscymnus
caelolepis 22 (Spiny Dogfish)

Genus 18 Centroscyllium
fabricii 23 (Spiny Dogfish)

Family XI Dalatiidae. Spinacidae in part of some.

Genus 19 Somniosus
microcephalus 24 (Sleeper Shark: Greenland Shark)

SUB-ORDER 4 TECTOSPONDYLI. (Plagiostomes in which the calcification of each centrum in cross section forms a series of concentric rings around the axis.)

Family XII Pristidae

Genus 20 Pristis
pectinatus 25 (Common Sawfish)

Family XIII Rajidae. Raiidae according to some (—a question of orthography).

Genus 21 Raja
erinacea 26 (Common Skate)
ocellata 27 (Big Skate)
fyllke 28
radiata 29 (Starry Ray)
senta 30
laevis 31 (Barn-door Skate)
granulata 32
rhina 33
binoculata 34 (Big-Skate-of-California)
stellulata 35
abyssicola 36 (Deep Sea Ray)

Family XIV Dasyatidae. Also known as Trygonidae.

Genus 22 *Dasyatis*
centrura 37 (Common Sting Ray)

ORDER IV HOLOCEPHALI (Chimaeras).

Family XV Chimaeridae.

Genus 23 *Chimaera*
affinis 38 (Chimaera)
Genus 24 *Hydrolagus*
collei 39 (Ratfish)

Sub-class III Teleostomi (Sturgeons and their allies and true-boned fishes).

(Series A¹—Physostomous Teleostomes, or such in which the air-bladder, as a rule, communicates with the œsophagus, or digestive tract, by a pneumatic duct).

SUPER ORDER I CHONDROSTEI (Sturgeons and their allies).

ORDER V ACIPENSEROIDEI (Equivalent to the super-order)

Family XVI Polyodontidae.

Genus 25 *Polyodon*
spathula 40 (Paddle-fish)

Family XVII Acipenseridae.

Genus 26 *Acipenser*
transmontanus 41 (White Sturgeon)
medirostris 42 (Green Sturgeon)
sturio oxyrhynchus 43 (Common Sturgeon)
rubicundus 44 (Lake Sturgeon)
brevirostrum 45 (Short-nosed Sturgeon)

SUPER-ORDER II TELEOSTEI (True-boned Fishes)

ORDER VI HOLOSTEI (Extant representatives, Gar-pikes and the Bowfin).

Family XVIII Lepidosteidae.

Genus 27 *Lepidosteus*
osseus 46 (Common Garpike)
platostomus 47 (Short-nosed Garpike)

Family XIX Amiidae.

Genus 28 *Amia*
calva 48 (Bowfin: Dogfish)

ORDER VII MALACOPTERYGII² (Clupeoids, Salmonoids, and Viper Fishes and their allies). Equivalent (at least in so far as extant forms are concerned) to the order Isospondyli and to part of the Iniomi as regarded by Jordan and Evermann, and to the Scyphophori (a group of African fishes) placed by these authorities in Ostariophysi.

SUB-ORDER I CLUPEOIDEA (Clupeoids)

Family XX Elopidae.

Genus 29 *Tarpon*
atlanticus 49 (Tarpon)

¹In series A are included the super-order Chondrostei, and the orders Holostei, Malacopterygii, Ostariophysi, Apodes, and Haplomi, of the super-order Teleostei; whilst series B (page 21) embraces the remaining orders of Teleostei.

²"Unquestionably the most generalized sub-order, having most in common with the Holostean ganoids." Boulenger.

*Family XXI Albulidae*Genus 30 *Albula*

vulpes 50 (Lady-fish).

*Family XXII Hyodontidae.*Genus 31 *Hyodon*

alosoides 51 (Shad Mooneye)

chrysopsis 52 (Western Goldeye)

tergisus 53 (Mooneye: Toothed Herring)

Family XXIII Dorosomidae. Included in Clupeidae by some.Genus 32 *Dorosoma*

cepedianum 54 (Gizzard Shad: Hickory Shad)

*Family XXIV Clupeidae*Genus 33 *Clupea*

harengus 55 (Common Herring)

pallasii 56 (California Herring)

Genus 34 *Clupanodon*

caeruleus 57 (California Sardine)

Genus 35 *Pomolobus*

chrysochloris 58 (Blue Herring: Skipjack)

mediocris 59 (Hickory Shad: Fall Herring)

pseudoharengus 60 (Gaspereau: Alewife)

aestivalis 61 (Glut Herring)

Genus 36 *Alosa*

sapidissima 62 (American Shad)

Genus 37 *Brevoortia*

tyrannus 63 (Menhaden: Mossbunker)

*Family XXV Engraulididae.*¹ Included as a sub-family—Engraulinae—by some in Clupeidae.Genus 38 *Engraulis*

mordax 64 (California Anchovy)

*Family XXVI Alepocephalidae.*Genus 39 *Mitchillina*

bairdii 65

SUB-ORDER 2 SALMONOIDEA (Salmonoids)*Family XXVII Salmonidae.*Genus 40 *Coregonus*

coulterii 66 (Coulter's Whitefish)

williamsoni 67 (Rocky Mountain Whitefish)

kennicotti 68 (Broad Whitefish)

richardsonii 69 (Richardson's Whitefish)

quadrilateralis 70 (Round Whitefish: Shad-Waiter)

clupeiformis 71 (Common Whitefish)

nelsonii 72 (Humpback Whitefish)

labradoricus 73 (Labrador Whitefish: Sault Whitefish)

¹"This group is often regarded as a sub-family under the *Clupeidae*, from which it differs in no character of high importance." Jordan and Evermann

Genus 41 *Argyrosomus*

- osmeriformis* 74 (Smelt-of-the-New-York-Lakes)
- artedii* 75 (Cisco: Lake Herring)
- hoyi* 76 (Mooneye Cisco)
- pusillus* 77 (Least Whitefish)
- lucidus* 78 (Great-Bear-Lake-Herring)
- laurettae* 79 (Lauretta Cisco)
- prognathus* 80 (Bloater: Long-jaw)
- nigripinnis* 81 (Black-fin: Blue-fin)
- tullibee* 82 (Tullibee)

Genus 42 *Stenodus*

- mackenzii* 83 (Inconnu)

Genus 43 *Oncorhynchus*

- gorbuscha* 84 (Humpback Salmon)
- keta* 85 (Dog Salmon)
- tschawytscha* 86 (Spring Salmon: Quinnet: King Salmon)
- kisutch* 87 (Coho: Silver Salmon)
- nerka* 88 (Sockeye Salmon: Blue-back Salmon)
- kennerlyi* 89 (Kennerly's Salmon: Little Redfish)

Genus 44 *Salmo*

- salar* 90 (Atlantic Salmon)
- sebago* 91 (Landlocked Salmon)
- ouananiche* 92 (Ouananiche)
- clarkii* 93 (Cutthroat Trout)
- rivularis* 94 (Steelhead)
- kamloops* 95 (Kamloops Trout)
- irideus* 96 (Rainbow Trout)
- trutta levenensis* 97 (Loch Leven Trout)

Genus 45 *Cristivomer*

- namaycush* 98 (Salmon Trout: Great Lake Trout)
- siscowet* 99 (Siscowet)

Genus 46 *Salvelinus*

- fontinalis* 100 (Speckled Trout: Brook Trout)
- parkei* 101 (Dolly Varden Trout)
- alpinus* *alipes* 102 (Long-finned Charr)
 - stagnalis* 103 (Greenland Charr)
 - areturnus* 104 (Arctic Charr)
- oguassa naresi* 105 (Nares Charr)
- marstoni* 106 (Marston Trout: Red Canadian Trout)

Family XXVIII Thymallidae. Included in Salmonidae by some.Genus 47 *Thymallus*

- signifer* 107 (Arctic Grayling)
- tricolor* 108 (Michigan Grayling)
- montanus* 109 (Montana Grayling)

Family XXIX Argentinidae. Included in Salmonidae by some.Genus 48 *Mallotus*

- villosus* 110 (Capelin)

Genus 49 *Thaleichthys*
pacificus 111 (Oolachan: Candle-fish)

Genus 50 *Osmerus*
thaleichthys 112 (Pacific Smelt)
mordax 113 (American Smelt)
dentex 114 (Rainbow Herring)

Genus 51 *Mesopus*
pretiosus 115 (Surf Smelt)

Genus 52 *Argentina*
silus 116 (Argentine: Siel Smelt)

Family XXX *Microstomidae*. Included in Salmonidae by some.

Genus 53 *Bathylagus*
pacificus 117 (Deep Sea Smelt)

SUB-ORDER 3 STOMIATOIDEA¹ (Viper Fishes and their allies)

Family XXXI *Chauliodontidae*. Included as a sub-family—Chauliodontinae—in the more comprehensive family Stomiidae of Boulenger. Placed in the order Iniomi by Jordan and Evermann.

Genus 54 *Chauliodus*
macouni 118 (Viperfish)
sloanei 119 (Viperfish)

Family XXXII *Sternoptychidae*. Included as a sub-family—Sternoptychinae—in the more comprehensive family Stomiidae of Boulenger. Placed in the order Iniomi by Jordan and Evermann.

Genus 55 *Sternoptyx*
diaphana 120
 Genus 56 *Argyropelecus*
olfersi 121

Family XXXIII *Stomiidae*. Embraces as a sub-family—Stomiatinae—a part only of the more comprehensive family Stomiidae of Boulenger. Placed in the order Iniomi by Jordan and Evermann.

Genus 57 *Stomias*
ferox 122

Family XXXIV *Malacosteidae*. Included in the sub-family—Stomiatinae—in the more comprehensive family Stomiidae of Boulenger. Placed in the order Iniomi by Jordan and Evermann.

Genus 58 *Malacosteus*
niger 123

ORDER VIII OSTARIOPHYSI² (Canadian representatives Siluroids and Cyprinoids)
 The Seyphophori (fishes of Africa) are included in Ostariophysi by Jordan and Evermann—see under Malacopterygii, page 13.

¹For the sake of system I know not how better to distinguish from the clupeoids and salmonoids the families in which the Viper-fishes and their allies are embraced than by placing them in a sub-order which I denote *Stomiatoides*. Whether or not in general the forms which this sub-order would embrace have the mesocoracoid-arch present, or atrophied, or absent, I do not know.

²"One of the most natural groups of the class Pisces, as demonstrated by M. Sägemehl in 1885." Boulenger.

PLATE II.

8-13. *Oncorhynchus gorbuscha* (Humpback Salmon)
(Showing seasonal characteristics)

PLATE II

2. 131. *Oncometopha gonostoma* (Hirshfeld, 1931)
(Showing seasonal characteristics)

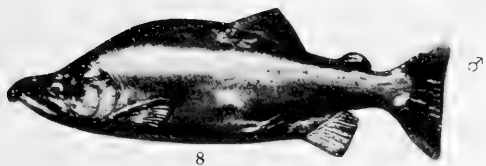
The following figures show the seasonal characteristics of the species, based on the data of the author's collection.

The figures are arranged in the order of the months of the year, from January to December.

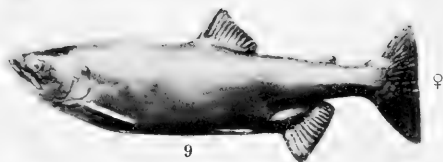
The figures are arranged in the order of the months of the year, from January to December.

The figures are arranged in the order of the months of the year, from January to December.

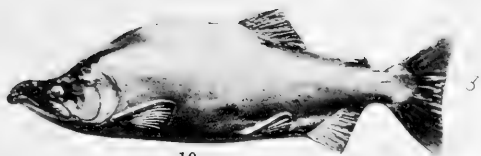
The figures are arranged in the order of the months of the year, from January to December.



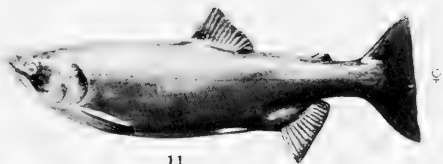
8



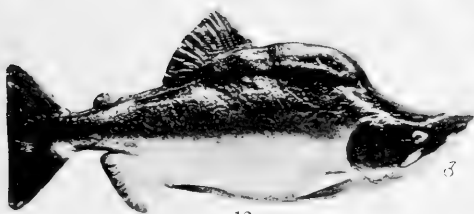
9



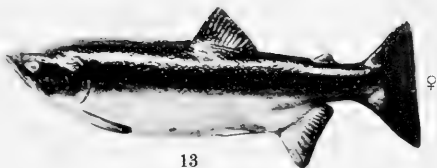
10



11



12



13

SUB-ORDER 1 NEMATOGNATHI (Siluroids=Cat-fishes and their allies)*Family XXXV Siluridae*

- Genus 59 Ictalurus
 - punctatus 124 (Channel Catfish)
- Genus 60 Ameiurus
 - lacustris 125 (Lake Catfish)
 - natalis 126 (Yellow Catfish)
 - vulgaris 127 (Long-jawed Catfish)
 - nebulosus 128 (Common Catfish: Horned Pout)
 - melas 129 (Black Bullhead)
- Genus 61 Noturus
 - flavus 130 (Stone Catfish)
- Genus 62 Schilbeodes
 - gyrinus 131 (Tadpole Stone Cat: Mad Tom)

SUB-ORDER 2 EVENTOGNATHI¹ (Cyprinoids = Suckers, Minnows, and Carps).

Family XXXVI Catostomidae. Included as a sub-family Catostominae in Cyprinidae by Boulenger, as proposed by Sagenohl.

- Genus 63 Ictiobus
 - cyprinella 132 (Common Buffalo Fish)
 - babalus 133 (Small-mouth Buffalo Fish)
- Genus 64 Carpiodes
 - thompsoni 134 (Lake Carp Sucker)
 - velifer 135 (Quillback)
- Genus 65 Pantosteus
 - jordani 136 (Mountain Sucker)
- Genus 66 Catostomus
 - griseus 137 (Gray Sucker)
 - catostomus 138 (Northern Sucker)
 - macrocheilus 139 (Columbia River Sucker)
 - commersonii 140 (Common White Sucker)
 - nigricans 141 (Stone Roller: Black Sucker)
- Genus 67 Erimyzon
 - sucetta oblongus 142 (Chub Sucker)
- Genus 68 Minytrema
 - melanops 143 (Spotted Sucker)
- Genus 69 Moxostoma
 - anisurum 144 (White-nosed Red Horse)
 - aureolum 145 (Common Red Horse)
 - macrolepidotum 146 (Large-scaled Red Horse)
 - lesueurii 147 (Northern Red Horse)
 - breviceps 148 (Short-headed Mullet)

¹I employ the name Eventognathi for the Cyprinoids as a sub-order instead of Plectospondyli. The literal meaning of the latter is *woven together vertebrae*, and the co-ossification of the anterior vertebrae is a character as true of the siluroids as of the cyprinoids. Nematognathi and Plectospondyli are by some regarded as orders, and the latter is divisible into 3 sub-orders, viz:—Eventognathi, Heterognathi, and Gymnionoti, the first mentioned alone of which is represented in our waters. I therefore employ the names Nematognathi and Eventognathi as sub-orders of the order Ostariophysi.

- Genus 70 *Placopharynx*
duquesnii 149
- Family XXXVII *Cyprinidae*
- Genus 71 *Camptostoma*
anomalum 150 (Stone Roller: Stone Lugger)
- Genus 72 *Acrocheilus*
alutaceus 151 (Chisel-mouth)
- Genus 73 *Chrosomus*
erythrogaster 152 (Red-bellied Dace)
- Genus 74 *Hybognathus*
nuchalis 153 (Silver Minnow)
argyritis 154 (White Minnow)
- Genus 75 *Pimephales*
promelas 155 (Black-head Minnow: Bull Minnow)
notatus 156 (Blunt-nosed Minnow)
- Genus 76 *Mylocheilus*
caurinus 157 (Columbia River Chub)
- Genus 77 *Semotilus*
corporalis 158 (Silver Chub: Fall-fish)
atromaculatus 159 (Creek Chub: Horned Dace)
- Genus 78 *Ptychocheilus*
oregonensis 160 (Squaw-fish)
- Genus 79 *Leuciscus*
balteatus 161 (Columbia River Minnow)
elongatus 162 (Red-sided Shiner)
nachtriebi 163 (Nachtrieb Dace)
neogaeus 164
- Genus 80 *Opsopæodus*
emiliae 165
- Genus 81 *Abramis*
crysoleucas 166 (Bream: Roach: Golden Shiner)
- Genus 82 *Cliola*
vigilax 167 (Bull-head Minnow)
- Genus 83 *Notropis*
jordani 168 (Jordan's Shiner)
cayuga 169 (Cayuga Shiner)
fretensis 170
muskoka 171 (Muskoka Shiner)
heterodon 172 (Black-chin Minnow)
blennius 173 (Straw-coloured Minnow)
volucellus 174
seylla 175
hudsonius 176 (Spawn-eater: Spot-tail Minnow)
selene 177 (Spawn-eater)
whipplii 178 (Silverfin: Satin-fin Minnow)
cornutus 179 (Dace: Redfin)
jejunus 180 (Poor Minnow)
scopifer 181

atherinoides 182 (Great Minnow)
 rubrifrons 183 (Rosy-front Minnow)
 umbratilis 184 (Redfin Minnow)

Genus 84 *Rhinichthys*

cataraetae 185 (Long-nosed Dace)
 dulcis 186 (Long-nosed Dace)
 atronasus 187 (Black-nosed Dace)

Genus 85 *Agosia*

nubila 188 (Dusky Minnow)
 umatilla 189 (Idaho Minnow)
 falcata 190 (Falcate Minnow)

Genus 86 *Hybopsis*

dissimilis 191 (Spotted Shiner)
 amblops 192 (Silver Chub)
 storcerianus 193 (Lake Minnow)

Genus 87 *Couesius*

plumbeus 194 (Lake Chub)
 dissimilis 195
 greeni 196 (Green's Chub)

Genus 88 *Platygnathus*

gracilis 197 (Flat-headed Chub)

Genus 89 *Exoglossum*

maxillingua 198 (Cut-lip Minnow)

Genus 90 *Cyprinus*

carpio 199 (German Carp)

Genus 91 *Carassius*

auratus 200 (Goldfish)

ORDER IX APODES¹ (Eels)

Family XXXVIII Anguillidae. Included in Muraenidae by Günther.

Genus 92 *Anguilla*

chrysypa 201 (American Eel)

Family XXXIX Simenchelyidae. Included in Anguillidae by Boulenger.

Genus 93 *Simenchelys*

parasiticus 202 (Snub-nosed Eel)

Family XL Leptocephalidae. Included in Muraenidae by Günther, and in Anguillidae by Boulenger.

Genus 94 *Leptocephalus*

conger 203 (Conger Eel)

Family XLI Nemichthyidae. Included in Muraenidae by Günther.

Genus 95 *Avocettina*

infans 204 (Snipe Eel)

Genus 96 *Nemichthys*

scelopaceus 205 (Snipe Eel)
 avocetta 206 (Snipe Eel)

¹"A large group of aberrant, degraded fishes, heralded by the Cretaceous genus *Urenchelys*, the most generalized of eels," Boulenger.

Family XLII Synaphobranchidæ.¹ Included in Muraenidæ by Günther.

Genus 97 *Synaphobranchus*
pinnatus 207 (Deep Sea Eel)

Family XLIII Eurypharyngidæ. Included in Muraenidæ (*Saccopharynx*) by Günther, and in Saccopharyngidæ by Boulenger. Placed in the order Lyomeri (Gulpers) of Gill and Ryder, by Jordan and Evermann.

Genus 98 *Gastrostomus*
bairdii 208 (Gulper)

ORDER X HAPLOMI.² (Such physostomous Teleostomes, excepting Symbranchii and Apodes, as are devoid of a mesocoracoid arch).

Family XLIV Lucidæ. Esocidæ of Günther, and with Umbridæ, equivalent to Esocidæ of Boulenger.

Genus 99 *Lucius*
reticulatus 209 (Green Pike: Common Eastern Pickerel)
lucius 210 (Common Pike)
masquinongy 211 (Maskinonge)

Family XLV Umbridæ. Equivalent with Lucidæ to Esocidæ of Boulenger.

Genus 100 *Umbra*
limi 212 (Mud Minnow)

Family XLVI Psectrocentridæ. Included in Cyprinodontidæ by some.

Genus 101 *Fundulus*
heteroclitus 213 (Common Killifish)
macrolepidotus 214 (Common Cobbler)
badius 215 (Garman's Cobbler)
diaphanus 216 (Fresh-water Killifish: Grayback)
notatus 217 (Top Minnow)

Family XLVII Myctophidæ. Included in Scopelidæ by some. Placed in the order Iniomini by Jordan and Evermann.

Genus 102 *Macrostoma*
quercinum 218
margaritifera 219
castaneum 220
 Genus 103 *Ceratoscopelus*
madeirensis 221 (Lantern Fish)
 Genus 104 *Lampanyctus*
güntheri 222
gemmifer 223
 Genus 105 *Nannobranchium*
nannochir 224
 Genus 106 *Diaphus*
theta 225 (Head-light Fish)

¹"Deep-sea Fishes, resembling the true Eels in the general form and in the presence of linear scales placed at right angles, but differing in the absence of the pterygo-palatine arch, as in the Saccopharyngidæ." Boulenger

²"The absence of the mesocoracoid bone distinguishes these fishes from the Malacopterygii, and the presence of a duct to the air bladder separates them from the Percosoces, to some of which, the Scombroideæ and the Atherinidæ, they are linked by the Cyprinodontidæ; whilst the Scopelidæ are connected with the Berycidæ by the Stephanoberycidæ." Boulenger.

Genus 107 *Rhinoscopelus*
coccoi 226

Genus 108 *Myctophum*
punctatum 227 (Lantern Fish)

Genus 109 *Benthoosema*
arctium 228

Genus 110 *Tarletonbeania*
crenularis 229

Family XLVIII Paralepididae. Included in *Scopelidae* by some. Placed in the order *Iniomi* by Jordan and Evermann.

Genus 111 *Arctozenus*
borealis 230

Family XLIX Plagyodontidae. Known also as *Alepidosauridae*. Placed in the order *Iniomi* by Jordan and Evermann.

Genus 112 *Plagyodus*
ferox 231 (Lancet Fish)
æsculapius 232 (Wolf-fish; Hand-saw Fish)
borealis 233 (Hand-saw Fish)

Family L Percopsidae. As a family equivalent to the sub-order *Salmopereæ* of *Acanthopterygii* (*Acanthopteri*) of Jordan and Evermann, and as such, of course, by them, raised in rank.

Genus 113 *Percopsis*
guttatus 234 (Sand Roller; Trout Perch)

Genus 114 *Columbia*
transmontana 235 (Oregon Trout Perch)

(Series B¹—Physoclistous Teleostomes, or such in which the air bladder, as a rule, does not communicate with the œsophagus, or digestive tract, by a pneumatic duct, except in the embryos.)

ORDER XI HETEROMI² (Spiny Eels)

Family LI Notacanthida

Genus 115 *Notacanthus*
phasganorus 236 (Spiny Eel)

Genus 116 *Macdonaldia*
rostrata 237 (Spiny Eel)

ORDER XII SELENICHTHYES.³ (Represented solely by the Opah—*Lampris luna*). Instituted as a sub-order by Boulenger to contain *Lampris luna*.

¹See note to series A, page 13.

²"Closely related to the Haplomi, but separated chiefly on account of the closed air-bladder." Boulenger.

³"A very aberrant type of uncertain affinities. Its only representative is the opah, *Lampris luna* a large pelagic fish of wide distribution." Boulenger.

In the VIIth volume of the Cambridge Natural History (1910) Boulenger places *Lampris luna* in his division Selenichthyes of the sub-order Catosteomi, but later in the XIth edition of the Encyclopædia Britannica (1911) he separates Selenichthyes as a distinctive sub-order, and places the rest of Catosteomi in the sub-order Thoracosteï, a group proposed by Swinnerton to contain Hemibranchii and Lophobranchii.

Family LII Lamprididae. Placed as a family by Jordan and Evermann in their group Scombroidei, among the Acanthopterygii (Acanthopteri) and by Günther in Coryphanidae, in his division Acanthopterygii Cotto-Scombriformes.

Genus 117 *Lampris*

luna 238 (Opah: King-fish)

ORDER XIII THORACOSTEI (Sticklebacks, Trumpet-fishes, Pipe-fishes, and Sea-horses).

SUB-ORDER I HEMIBRANCHII (Sticklebacks and Trumpet-fishes). Regarded as a distinct order by Jordan and Evermann. Subsequently with Jordan a sub-order of Phthinobranchii.

Family LIII Gastrosceidae

Genus 118 *Eucalia*

inconstans 239 (Brook Stickleback)

pygmaea 240 (Dwarf Stickleback)

Genus 119 *Pygosteus*

pungitius 241 (Nine-Spined Stickleback)

brachypoda 242 (Arctic Stickleback)

Genus 120 *Gastrosceus*

aculeatus 243 (Common Stickleback)

atkinsii 244 (Eastern Stickleback)

cuvieri 245 (Partly Armoured Stickleback)

cataphractus 246 (Alaska Stickleback)

williamsoni microcephalus 247 (California Stickleback)

Genus 121 *Apeltes*

quadraeus 248 (Four-spined Stickleback)

Family LIV Aulorhynchidae

Genus 122 *Aulorhynchus*

flavidus 249 (Yellow Stickleback)

Family LV Fistulariidae

Genus 123 *Fistularia*

tabacaria 250 (Trumpet Fish)

petimba 251 (Trumpet Fish)

SUB-ORDER 2 LOPHOBRANCHII (Pipe-fishes and Sea-horses.) Regarded as a distinct order by Jordan and Evermann. Subsequently with Jordan a sub-order of Phthinobranchii.

Family LVI Syngnathidae

Genus 124 *Siphostoma*

griseolineatum 252 (Pipe Fish)

fusum 253 (Common Pipe Fish)

Genus 125 *Hippocampus*

hudsonius 254 (Common American Sea-horse)

ORDER XIV PERCESOCES. (Here embracing diversified forms, which more or less agree in characters pointed out by Boulenger).¹ A portion of this order—a sub-order of Acanthopterygii (Acanthopteri) of Jordan and Evermann.

¹"Air-bladder, if present, without duct. Parietal bones separated by the supraoccipital. Pectoral arch suspended from the skull; no mesocephalic bone. Ventral fins, if present, abdominal, or at least with the pelvic bones not solidly attached to the clavicular arch." "Although this sub-order is perhaps only an artificial association, it must be borne in mind that, notwithstanding the very wide divergence which exists between the first and last families [Scombroideae and Anabantidae], and however dissimilar their members may appear to be at first sight, a gradual passage may be traced connecting the most aberrant types." Boulenger.

The admission, however, of certain families among the Percosoces by Boulenger is not approved by Jordan.

Family LVII Scombrsoidæ. Placed in their order Synentognathi by Jordan and Evermann.

Genus 126 *Scombresox*
saurus 255 (Saury; Billfish)

Family LVIII Exocetidae. Included in Scombrsoidæ by some. Placed in their order Synentognathi by Jordan and Evermann.

Genus 127 *Exocetus*
volitans 256 (Flying Fish)
Genus 128 *Exonantes*
vineiguerræ 257 (Flying Fish)
Genus 129 *Cypselurus*
heterurus 258 (Flying Fish)

*Family LIX Ammodytidae.*¹ Placed in Ophidiidae, among the Anacanthini by Günther. Placed in their group Ammodytoidei, among the Acanthopterygii (Acanthopteri) by Jordan and Evermann.

Genus 130 *Ammodytes*
dubius 259 (Sand Launce; Lant)
americanus 260 (Sand Launce; Sand Lant)
personatus 261 (Sand Launce)

Family LX Atherinidae. Placed by Günther in his division Acanthopterygii Mugiliformes.

Genus 131 *Menidia*
menidia notata 262 (Silverside)
Genus 132 *Labidesthes*
sieculus 263 (Lake Silverside; Skipjack)
Genus 133 *Atherinopsis*
californiensis 264 (Pescado del Rey; California Smelt)

Family LXI Chiasmodontidae. Placed in Gadidae, among the Anacanthini by Günther. Placed in their group Trachinoidea among the Acanthopterygii (Acanthopteri) by Jordan and Evermann.

Genus 134 *Chiasmodon*²
niger 265 (Black Swallower)

Family LXII Sphyrnidae. Placed by Günther in his division Acanthopterygii Mugiliformes.

Genus 135 *Sphyrna*
argentea 266 (California Barracuda)

¹The following concerning a primitive species of sand-launce (*Embolichthys mitsukurii*) from Formosa is quoted from Jordan:—

" the most primitive species of sand-launce, *Embolichthys mitsukurii*, occurs in Formosa. In this species, alone of the sand-lances the ventral fins are retained. These are jugular in position, as in the *Zourcidea*, and the rays are 1, 3. The discovery of this species makes it necessary to separate the *Ammodytidae* . . . widely from the *Percesoces*."

Nevertheless not being certain where otherwise to place the family Ammodytidae I leave it provisionally in *Percesoces* where Boulenger puts it, but it appears evident from the position of the pelvic fins in the above named species that its affinities are elsewhere.

²"*Chiasmodon* may be referred to the *Percesoces*, as the pelvic fins have only a ligamentous connexion with the pectoral arch." Boulenger.

Family LXIII Centrotophidae. Included in Stromateidae by Boulenger. Included in Stromateidae by Günther in his division Acanthopterygii Cotto-scombriformes. Placed in their group Scombroidei among the Acanthopterygii (Acanthopteri) by Jordan and Evermann.

Genus 136 *Palinurichthys*
perciformis 267 (Rudderfish)

Family LXIV Stromateidae. Placed by Günther in his division Acanthopterygii Cotto-scombriformes. Placed in their group Scombroidei among the Acanthopterygii (Acanthopteri) by Jordan and Evermann.

Genus 137 *Palometa*
simillimus 268 (California Pompano: Poppy Fish)
 Genus 138 *Poronotus*
triacanthus 269 (Dollarfish: Harvest-fish)

Family LXV Icosteidae. Placed in their group Scombroidei among the Acanthopterygii (Acanthopteri) by Jordan and Evermann. Included in Stromateidae by Gill.

Genus 139 *Icosteus*
enigmaticus 270 (Ragfish)

Family LXVI Aerotidae. Placed in their group Scombroidei among the Acanthopterygii (Acanthopteri) by Jordan and Evermann. Included in Stromateidae by Gill.

Genus 140 *Aerotus*
willoughbyi 271 (Ragfish)

Family LXVII Zaproridae. Placed in their group Scombroidei among the Acanthopterygii (Acanthopteri) by Jordan and Evermann.

Genus 141 *Zaprora*
silenus 272 (Prowfish)

ORDER XV ANACANTHINI (Anacanthus=Cod-fishes and their allies). Placed among the Acanthopterygii (Acanthopteri) by Jordan and Evermann.

Family LXVIII Merlucciidae. Included in Gadidae by some.

Genus 142 *Merluccius*
bilinearis 273 (Silver Hake: Whiting)
productus 274 (Pacific Hake)

Family LXIX Gadidae

Genus 143 *Boreogadus*
saida 275 (Northern Pollack)
 Genus 144 *Pollachius*
virens 276 (Pollack: Coalfish)
 Genus 145 *Theragra*
fucensis 277 (Wall-eyed Pollack)
 Genus 146 *Microgadus*
proximus 278 (California Tomcod)
tomcod 279 (Tomcod: Frost-fish)
 Genus 147 *Gadus*
callarias 280 (Common Codfish)
macrocephalus 281 (Pacific Codfish)
ogac 282 (Greenland Codfish)
 Genus 148 *Melanogrammus*
aeglefinus 283 (Haddock)

PLATE III.

14-19. *Oncorhynchus keta* (Dog Salmon)
(Showing seasonal characteristics)

14 101. (Unconjugated ketone (Dog Salmon))
(Showing seasonal characteristics)

PLATE III

Unconjugated ketone (Dog Salmon)

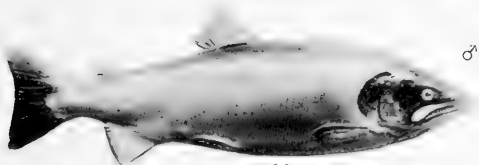
Unconjugated ketone (Dog Salmon)



14



15



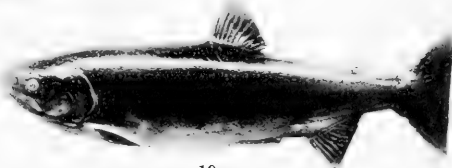
16



17



18



19

- Genus 149 Antimora
 - viola 284 (Violet Antimora)
 - microlepis 285 (Small-scaled Antimora)
- Genus 150 Lota
 - maculosa 286 (Fresh-water Ling; Burbot)
- Genus 151 Molva
 - molva 287 (Ling)
- Genus 152 Urophycis
 - regius 288 (Codling)
 - tenuis 289 (Codling; White Hake)
 - chuss 290 (Codling; Squirrel Hake)
- Genus 153 Gaidropsarus
 - ensis 291 (Three-bearded Rockling)
- Genus 154 Enchelyopus
 - cimbrius 292 (Four-bearded Rockling)
- Genus 155 Brosme
 - brosme 293 (Cusk)
- Family LXX *Macruridae*
 - Genus 156 Moseleya
 - cyclolepis 294
 - Genus 157 Albatrossia
 - pectoralis 295
 - Genus 158 Chalinura
 - serrula 296
 - filifera 297
 - Genus 159 Coryphaenoides
 - rupestris 298
 - Genus 160 Macrurus
 - holotrachys 299 (Grenadier)
 - aerolepis 300 (Grenadier)

ORDER XVI ACANTHOPTERYGII. (The vast majority of extant fishes. Such Teleosts, although exceptions are numerous, as possess non-articulated rays in the dorsal and anal fins.) Acanthopteri of Jordan and Evermann.

SUB-ORDER 1 BERYCIFORMES¹ Formerly placed with Perciformes by Boulenger, but later established by him as a distinct division of Acanthopterygii.

Family LXXI *Aphredoderidae*. Placed by Jordan and Evermann in their sub-order Xenarchi, of which it is the only family.

- Genus 161 Aphredoderus
 - sayanus 301 (Pirate Perch)

SUB-ORDER 2 PERCIFORMES

Family LXXII *Centrarchidae*

- Genus 162 Pomoxis
 - annularis 302 (Crappie)
 - sparoides 303 (Calico Bass; Strawberry Bass)
- Genus 163 Ambloplites
 - rupestris 304 (Rock Bass)

¹"The most primitive of the Acanthopterygians, already well represented in the Chalk." Boulenger.

- Genus 164 *Chænobryttus*
gulosus 305 (Warmouth: Goggle-eye)
- Genus 165 *Apomotis*
cyanellus 306 (Green Sunfish)
- Genus 166 *Lepomis*
auritus 307 (Long-eared Sunfish: Yellow Belly)
megalotis 308 (Long-eared Sunfish)
humilis 309 (Red-spotted Sunfish)
pallidus 310 (Blue Sunfish)
- Genus 167 *Eupomotis*
euryorus 311
gibbosus 312 (Common Sunfish)
- Genus 168 *Micropterus*
dolomieu 313 (Small-mouth Black Bass)
salmoides 314 (Large-mouth Black Bass)

Family LXXIII Percida

- Genus 169 *Stizostedion*
vitreum 315 (Pike Perch)
canadense 316 (Sauger)
- Genus 170 *Perca*
flavescens 317 (Yellow Perch: American Perch)
- Genus 171 *Percina*
caprodes 318 (Log Perch)
- Genus 172 *Hadropterus*
aspro 319 (Black-sided Darter)
güntheri 320 (Günther's Darter)
- Genus 173 *Cottogaster*
copelandi putnami 321 (Putnam's Darter)
shumardi 322 (Shumard's Darter)
cheneyi 323 (Cheney's Darter)
- Genus 174 *Boleosoma*
nigrum 324 (Johnny Darter)
ohnstedti 325 (Tessellated Darter)
- Genus 175 *Ammocrypta*
pellucida 326 (Sand Darter)
- Genus 176 *Etheostoma*
boreale 327 (Northern Darter)
iowae 328
caeruleum 329 (Rainbow Darter)
flabellare 330 (Fan-tailed Darter)
- Genus 177 *Boleichthys*
fusiformis 331 (Fusiform Darter)
exilis 332
- Genus 178 *Microperca*
punctulata 333 (Least Darter)

*Family LXXIV Serranidae*Genus 179 *Roccus*

chrysops 334 (White Bass)

lineatus 335 (Striped Bass)

Genus 180 *Morone*

americana 336 (White Perch)

*Family LXXV Sciaenidae*Genus 181 *Cynoscion*

regalis 337 (Common Weakfish)

nobilis 338 (White Sea Bass)

Genus 182 *Aplodinotus*

grunniens 339 (Fresh-water Drum: Lake Sheephead)

Genus 183 *Eques*

lanceolatus 340 (Ribbon-fish)

Family LXXVI Bathymasteridae.¹ Included in Pseudochromidae by Boulenger. Placed in their group Trachinoidea by Jordan and Evermann.Genus 184 *Ronquilus*

jordani 341 (Ronquil)

Family LXXVII Trichodontidae.² Placed by Jordan and Evermann in their group Trachinoidea, with apparent good reason.Genus 185 *Trichodon*

trichodon 342 (Sand-fish)

*Family LXXVIII Sparidae*Genus 186 *Stenotomus*

chrysops 343 (Porgy; Common Scup)

Genus 187 *Archosargus*

probatoccephalus 344 (Sheepshead)

Family LXXIX Embiotocidae. Placed by Jordan and Evermann in their sub-order Holconoti, of which it is the only family.Genus 188 *Cymatogaster*

aggregatus 345 (Sparada: Viviparous Perch)

Genus 189 *Brachyistius*

frenatus 346 (Surf-fish)

Genus 190 *Amphistichus*

argenteus 347 (Surf-fish)

Genus 191 *Embiotoca*

jacksoni 348 (Common Surf-fish: Blue Surf-fish)

Genus 192 *Teniotoca*

lateralis 349 (Striped Surf-fish)

Genus 193 *Phanerodon*

furcatus 350 (White Surf-fish)

Genus 194 *Damalichthys*

argyrosomus 351 (Porgie)

¹The relations of the group are uncertain; externally they resemble the *Opisthogathridae*, but the relation cannot be close, and the number of vertebrae is greatly increased." Jordan and Evermann.

²Stated by Boulenger to "agree in the character of the vertebral column with the Serranidae," but "bearing some resemblance to the Trachinidae, with which they have usually been associated."

Family LXXX Labridæ. Placed by Jordan and Evermann in their sub-order Pharyngognathi.

Genus 195 *Tautogolabrus*
 adpersus 352 (Cunner)

Genus 196 *Tautoga*
 onitis 353 (Tautog; Black-fish)

SUB-ORDER 3 SCOMBRIFORMES

Family LXXXI Scombridæ

Genus 197 *Scomber*
 scombrus 354 (Common Mackerel)
 japonicus 355 (Chub Mackerel)

Genus 198 *Gymnosarda*
 pelamis 356 (Oceanic Bonito)

Genus 199 *Thunnus*
 thynnus 357 (Tunny; Horse Mackerel)

Genus 200 *Germo*
 alalunga 358 (Long-finned Albacore)

Genus 201 *Sarda*
 sarda 359 (Bonito)
 chilensis 360 (California Bonito)

Family LXXXII Gempylidæ. Trichiuridæ in part of some.

Genus 202 *Escolar*
 violaceus 361 (Escolar)

*Family LXXXIII Lepidopidæ.*¹ Trichiuridæ in part of some.

Genus 203 *Benthodesmus*
 atlanticus 362

Family LXXXIV Xiphiidæ

Genus 204 *Xiphias*
 gladius 363 (Sword-fish)

Family LXXXV Carangidæ

Genus 205 *Naucrates*
 ductor 364 (Pilot-fish)

Genus 206 *Seriola*
 zonata 365 (Rudder-fish; Banded Seriole)

Genus 207 *Decapterus*
 macarellus 366 (Mackerel Shad)

Genus 208 *Trachurops*
 crumenophthalmus 367 (Goggler)

Genus 209 *Caranx*
 crysos 368 (Hard-tail; Yellow Mackerel)

Genus 210 *Selene*
 vomer 369 (Moonfish)

¹"The retention of the rudimentary caudal furnishes a slender character for the distinction of Lepidopidæ as a family from Trichiuridæ." Jordan and Evermann.

*Family LXXXVI Pomatomidae*¹

- Genus 211 Pomatomus
saltatrix 370 (Bluefish)

Family LXXXVII Bramidae

- Genus 212 Brama
raii 371 (Pomfret)

SUB-ORDER 4 ZEORHOMBI. (A division established by Boulenger to contain the extinct Amphistiidae, the only known representative of which is *Amphistium paradoxum*, Zeide—the John Dories, and Pleuronectidae—the Flat-fishes).

Family LXXXVIII Pleuronectidae. Placed by Jordan and Evermann in their sub-order Heterosomata—the Flat-fishes (Pleuronectidae and Soleidae).

- Genus 213 Atheresthes
stomias 372 (Arrow-toothed Halibut)
- Genus 214 Reinhardtius
hippoglossoides 373 (Greenland Halibut)
- Genus 215 Hippoglossus
hippoglossus 374 (Halibut)
- Genus 216 Lyopsetta
exilis 375
- Genus 217 Eopsetta
jordani 376 (California Sole)
- Genus 218 Hippoglossoides
platessoides 377 (Sand Dab; Rough Dab)
classodon 378
- Genus 219 Psettichthys
melanostictus 379 (Sole)
- Genus 220 Pleuronichthys
caenosus 380 (Muddy Flounder)
- Genus 221 Parophrys
vetulus 381 (Sharp-nosed Flounder)
- Genus 222 Inopsetta
ischyra 382
- Genus 223 Isopsetta
isolepis 383
- Genus 224 Lepidopsetta
bilineata 384 (Two-lined Flounder)
- Genus 225 Limanda
ferruginea 385 (Rusty Dab)
aspera 386 (Alaska Dab)
- Genus 226 Pseudopleuronectes
americanus 387 (Winter Flounder; Common Flatfish)
- Genus 227 Liopsetta
putnami 388 (Eel-back Flounder; Smooth Flounder)
- Genus 228 Platichthys
stellatus 389 (Starry Flounder)

¹"This family is closely related to the *Carangidae*, from which group it seems to be an offshoot towards the Percoids." Jordan and Evermann.

- Genus 229 *Microstomus*
 pacificus 390 (Slippery Sole)
 Genus 230 *Glyptocephalus*
 cynoglossus 391 (Craig Fluke: Pole Flounder)
 zachirus 392 (Long-finned Sole)
 Genus 231 *Lophopsetta*
 maculata 393 (Window Pane)
 Genus 232 *Citharichthys*
 sordidus 394 (Soft Flounder)

SUB-ORDER 5 GOBIIFORMES. Group Gobioidae in part of Jordan and Evermann.

Family LXXXIX *Gobiidae*

- Genus 233 *Gobius*
 nicholsii 395 (Goby)
 Genus 234 *Lepidogobius*
 lepidus 396 (Goby)
 Genus 235 *Quietula*
 y-cauda 397 (Goby)
 Genus 236 *Clevelandia*
 ios 398 (Goby)

SUB-ORDER 6 DISCOCEPHALI¹

Family XC' *Echenoidae*. Included in Scombridae in his division Acanthopterygii Cotto-Scombriformes by Günther.

- Genus 237 *Remora*
 remora 399 (Remora: Sucking-fish)

SUB-ORDER 7 SCLEROPAREI. (Mail-cheeked Fishes). Equivalent to the sub-orders *Loricati*² and *Craniomi*³ of Jordan and Evermann.

Family XCI *Scorpenidae*.

- Genus 238 *Sebastes*
 marinus 400 (Snapper: Rose-fish)
 Genus 239 *Sebastolobus*
 alascanus 401
 altivelis 402
 Genus 240 *Sebastodes*
 goodei 402a See addenda p. 117
 paucispinis 403 (Jack-fish: Bocaccio)
 melanops 404 (Black Sea Bass)

¹"They form an isolated group, and have no real affinity with the Scombridae, with which they have long been associated." Boulenger.

²"This group is distinguished by a single peculiar character, the extension of the third suborbital bone across the cheek to or toward the preopercle. From the *Craniomi*, an offshoot from the same group, in which the development of the suborbital stay is carried much farther, the present group is distinguished by the normal character of the shoulder girdle." Jordan and Evermann.

³"Scapular arch abnormal, the post-temporal forming an integral part of the cranium and the postero-temporal crowded out of place by the side of the preopercle above or at the edge of the post-temporal. In other respects essentially as in the *Loricati*, from which the *Craniomi* are derived." Jordan and Evermann.

The families of *Craniomi* are Triglidae, Peristediidae, and Cephalacanthidae, no representatives of the second mentioned of which have been recorded for Canada.

- mystinus 405 (Black Rock-fish: Priest-fish)
- brevispinis 406
- alutus 407
- pinniger 408 (Orange Rock-fish)
- introniger 409
- ruberrimus 410 (Red Rock-fish: Tambor)
- auriculatus dallii 411 (Brown Rock-fish)
- rastrelliger 411a (Grass Rockfish). See addenda p. 117.
- caurinus 412
- maliger 413 (Yellow-backed Rock-fish)
- chrysomelas 414 (Black and Yellow Rock-fish)
- nebulosus 415 (Yellow Spotted Rock-fish)
- nigrocinctus 416 (Black Banded Rock-fish)

Family XCII Anoplopomatidae.¹ Included in Comephoridae by Boulenger.

- Genus 241 *Anoplopoma*
- fimbria 417 (Coal-fish: Skil)

Family XCIII Hexagrammida

- Genus 242 *Hexagrammos*
- decagrammus 418 (Boregat: Starry Rock Trout)
- stelleri 419 (Greenling)
- superciliosus 420 (Red Rock-trout)
- Genus 243 *Ophiodon*
- elongatus 421 (Cultus Cod)
- Genus 244 *Zaniolepis*
- latipinnis 422 (Broad-fin Cod)
- Genus 245 *Oxylebius*
- pictus 423 (Painted Cod)

Family XCIV Cottidae.

- Genus 246 *Jordania*
- zonope 424
- Genus 247 *Scorpaenichthys*
- marmoratus 425 (Cabezon)
- Genus 248 *Chitonotus*
- pugetensis 426
- Genus 249 *Icelinus*
- strabo 427
- Genus 250 *Astrolytes*
- fenestralis 428
- Genus 251 *Arteidius*
- lateralis 429
- asperulus 430
- Genus 252 *Axyrias*
- harringtoni 431
- Genus 253 *Arteidiellus*
- atlanticus 432

¹"This family is closely allied to the *Hexagrammidae*, differing chiefly in the normal development of the nostrils, which are formed as in the *Scorpaenidae* and as in fishes generally." Jordan and Evermann.

- Genus 254 *Ruscarius*
 manyi 433
- Genus 255 *Icelus*
 bicornis 434
- Genus 256 *Radulinus*
 asprellus 435
- Genus 257 *Asemichthys*
 taylori 436
- Genus 258 *Triglops*
 pingeli 437
 beani 438
- Genus 259 *Prionistius*
 macellus 439
- Genus 260 *Hemilepidotus*
 hemilepidotus 440 (Red Sculpin)
- Genus 261 *Enophrys*
 bison 441 (Stone Sculpin: Buffalo Sculpin)
- Genus 262 *Cottus*
 asper 442 (Prickly Bull-head)
 gulosus 443 (California Miller's Thumb)
 semiscaber 444 (Rocky Mountain Bull-head)
 ictalops 445 (Blop)
 ricei 446
 onychus 447
 pollicaris 448 (Olivaceous Miller's Thumb)
 cognatus 449 (Great-Bear-Lake-Bull-head)
 aleuticus 450
 philonips 451
 spilotus 452
- Genus 263 *Uranidea*
 bendirei 453
 franklini 454 (Franklin's Sculpin)
 gracilis 455 (Miller's Thumb: Blop)
 formosa 456 (Lake Miller's Thumb)
- Genus 264 *Myoxocephalus*
 areus 457 (Grubby: Pigmy Sculpin)
 scorpioides 458 (Arctic Sculpin)
 scorpius 459 (European Sculpin)
 grœnlandicus 460 (Daddy Sculpin)
 octodecimspinosus 461 (Common Sculpin: Long-spined Sculpin)
 polyacanthocephalus 462 (Great Sculpin)
- Genus 265 *Dasycottus*
 setiger 463
- Genus 266 *Oncocottus*
 hexacornis 464 (Long-horned Sculpin)
- Genus 267 *Triglopsis*. Placed in *Comephoridae* by Boulenger.
 thompsoni 465 (Lake Sculpin: Deep-water Blop)
 ontariensis 466

PLATE IV.

20-24. *Oncorhynchus tshawytscha* (Quinnat or Spring Salmon)

(Showing seasonal characteristics)

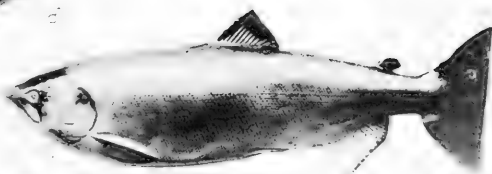
[See also plate V, figure 31.]

PLATE 17

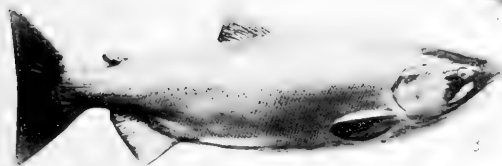
Figures 1-10. *Phrynosoma hernandesi* (Lacépède)
Showing seasonal characteristics
[See also plate 1, figure 31.]



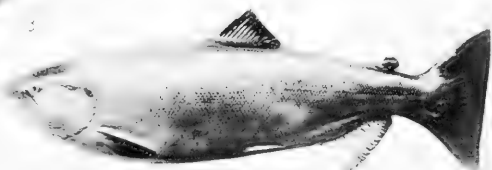
20



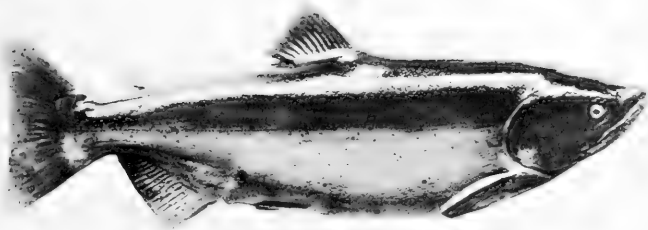
21



22



23



24

- Genus 268 *Gymnocanthus*
 - pistilliger* 467
 - tricuspis* 468
- Genus 269 *Oligocottus*
 - borealis* 469
- Genus 270 *Blennicottus*
 - acuticeps* 470
 - globiceps bryosus* 471 (Globe-headed Sculpin)
- Genus 271 *Blepsias*
 - cirrhosus* 472 (Prickled Sailor-fish)
- Genus 272 *Nautichthys*
 - oculofasciatus* 473 (Banded Sailor-fish)
- Genus 273 *Hemitripterus*
 - americanus* 474 (Sea Raven)
 - cavifrons* 475 (Sea Raven)
- Genus 274 *Synchirus*
 - gilli* 476
- Genus 275 *Ascelichthys*
 - rhodorus* 477
- Genus 276 *Psychrolutes*
 - paradoxus* 478 (Spineless Sculpin)
- Genus 277 *Gilbertidia*
 - sigolutes* 479
- Family XCV *Rhamphocottidae*
 - Genus 278 *Rhamphocottus*
 - richardsoni* 480 (Richardson's Sculpin)
- Family XCVI *Agonidae*
 - Genus 279 *Hypsagonus*
 - quadricornis* 481
 - Genus 280 *Pallasina*
 - barbata* 482
 - aix* 483
 - Genus 281 *Leptagonus*
 - decagonus* 484
 - Genus 282 *Podothecus*
 - acipenserinus* 485 (Common Alligator-fish)
 - Genus 283 *Agonus*
 - cataphractus* 486 (Sea Poacher: Pogge)
 - Genus 284 *Averruncus*
 - emmelane* 487 (Dark-coloured Alligator-fish)
 - Genus 285 *Xystes*
 - axinophrys* 488
 - Genus 286 *Bathyagonus*
 - nigripinnis* 489
 - Genus 287 *Xenochirus*
 - pentacanthus* 490
 - Genus 288 *Odontopyxis*
 - trispinosus* 491

- Genus 289 *Bothragonus*
 swanii 492
- Genus 290 *Aspidophoroides*
 olriki 493
 monopterygius 494 (Sea Poacher; Alligator-fish)
 inermis 495
- Family *XCVII Cyclopteridæ*
 Genus 291 *Cyclopterus*
 lumpus 496 (Lump-fish; Lump-sucker)
 Genus 292 *Eumierotremus*
 spinosus 497
 orbis 498
- Family *XCVIII Liparididæ*.¹ Included in *Cyclopteridæ* by Boulenger.
 Genus 293 *Neoliparis*
 atlanticus 499
 floræ 500
 greeni 501 (Green's Sucker)
 Genus 294 *Liparis*
 liparis 502 (Sea Snail)
 cyclopus 503
 fucensis 504
 tunicatus 505
 herschelinus 506
 dennyi 507
 pulchellus 508 (Stone Sucker)
 Genus 295 *Bathyphasma*
 ovigerum 509
 Genus 296 *Careproctus*
 ranula 510
 Genus 297 *Paraliparis*
 cephalus 511
 ulochir 512
- Family *XCIX Triglida*
 Genus 298 *Prionotus*
 carolinus 513 (Common Gurnard)
- Family *C Cephalacanthidæ*.² *Dactylopteridæ* according to Boulenger.
 Genus 299 *Cephalacanthus*
 volitans 514 (Flying Robin; Flying Gurnard)

¹Reasons for separating this family from the *Cyclopteridæ* and placing it farther from the *Cottidæ* exist in the continuous dorsal, the connection of dorsal and anal with the caudal, the more complete transformation of the ventral rays, the more slender and spine-like suborbital process, the expanded upper limb of the preoperculum, the styli-form inter-operculum, the shorter olfactory nerves, and the more elongate brain." Jordan and Evermann, after Garman.

²As the young of this family with a single genus, which have comparatively short pectoral fins, were once regarded as a species belonging to a distinct genus *Cephalacanthus*, perhaps the valid genus ought to stand *Dactylopterus*; and in that case the name of the family would conform to that of the genus—*Dactylopteridæ*.

SUB-ORDER 8 JUGULARES

Family CI Batrachoididae. Placed by Jordan and Evermann in their sub-order Haplodoci¹ of which it is the only family.

Genus 300 *Porichthys*
notatus 515 (Midshipman)

Family CII Gobioididae. Placed by Jordan and Evermann in their sub-order Xenopterygii² of which it is the only family.

Genus 301 *Caularchus*
macandrieus 516 (Suck-fish; Cling-fish)

Family CIII Blenniidae. Placed by Jordan and Evermann in their group Blennioidea.

Genus 302 *Heterostichus*
rostratus 517 (Kelpfish)

Genus 303 *Bryostemma*
polyactocephalum 518 (Tufted Blenny)
nugator 519

Genus 304 *Apodichthys*³
flavidus 520 (Yellow Blenny)

Genus 305 *Xerorpes*
fucorum 521

Genus 306 *Pholis*³
gunnellus 522 (Gunnel; Butter-fish)
fasciatus 523
ornatus 524 (Ornamented Gunnel)

Genus 307 *Anoplarchus*
atropurpureus 525

Genus 308 *Xiphistes*
chirus 526

Genus 309 *Xiphidion*
mucosum 527 (Slimy Eel Pout)
rupestre 528 (Rock Eel Pout)

Genus 310 *Leptoclinus*
maculatus 529 (Langbarn)

Genus 311 *Lumpenus*
medius 530
anguillaris 531 (Snake Blenny)
fabricii 532
lampetraformis 533 (Serpent Blenny)

Genus 312 *Stichæus*
punctatus 534

¹"This group is distinguished mainly by the undivided post-temporal, the reduction in the number of gill arches to 3, and by the absence of peculiarities shown by related forms." Jordan and Evermann.

²"A well-marked group of small fishes, constituting a single family." Jordan and Evermann.

³On account of the structure of the precaudal vertebrae, *Apodichthys* and *Pholis* are not placed by Boulenger in Blenniidae, but in a family—Pholididae—by themselves. I do not venture to so place them, lest in so doing other genera which may be included in these two by Boulenger (*Xerorpes* for instance) might also for the same reason require to be placed in Pholididae.

Genus 313 *Ulvaria*
 subbifurcata 535 (Radiated Shanny)

Genus 314 *Eumesogrammus*
 precisus 536

Family CIV Cryptacanthodidae. Included in *Blenniidae* by Günther. Placed by Jordan and Evermann in their group *Blennioidea*.

Genus 315 *Delolepis*
 virgatus 537 (Wrymouth)

Genus 316 *Cryptacanthodes*
 maculatus 538 (Wrymouth; Ghost-fish)

Family CV Anarhichadidae. Included in *Blenniidae* by some. Placed by Jordan and Evermann in their group *Blennioidea*.

Genus 317 *Anarhichas*
 latifrons 539 (Wolf-fish)
 minor 540 (Wolf-fish)
 lupus 541 (Wolf-fish)
 lepturus 542 (Alaska Wolf-fish)

Genus 318 *Anarrhichthys*
 ocellatus 543 (Wolf Eel)

Family CVI Scytalinidae. Included in *Zoarcidae* by Boulenger. Placed by Jordan and Evermann in their group *Ophidioidea*.

Genus 319 *Scytalina*
 cerdale 544

Family CVII Zoarcidae. Placed by Jordan and Evermann in their group *Ophidioidea*.

Genus 320 *Zoarces*
 anguillaris 545 (Eel Pout)

Genus 321 *Lycodopsis*
 pacificus 546 (Pacific Eel Pout)

Genus 322 *Lycodes*
 vahlII 547
 zoarchus 548
 reticulatus 549
 frigidus 550
 terre-novae 551

Genus 323 *Lycodalepis*
 mucosus 552

Genus 324 *Lycenchelys*
 verrillii 553
 paxillus 554

Genus 325 *Bothrocara*
 mollis 555

Genus 326 *Gymnelis*
 viridis 556
 stigma 557

Genus 327 *Lycocara*
 parrii 558

Family CVIII Derepodichthyidae. Included in Zoarcidae by Boulenger. Placed by Jordan and Evermann in their group Ophidioidea.

Genus 328 *Derepodichthys*
alepidotus 559

SUB-ORDER 9 TAENIOSOMI¹

Family CIX Trachypteridae.

Genus 329 *Trachypterus*
rex-salmonorum 560 (King-of-the-Salmon)

ORDER XVII PEDICULATI (Anglers or Fishing-frogs and their allies)

Family CX Lophiidae

Genus 330 *Lophius*
piscatorius 561 (Angler; Fishing-frog; Monk-fish)

Family CXI Ceratiidae

Genus 331 *Ceratias*
holbolli 562 (Sea Devil)

ORDER XVIII PLECTOGNATHI. (Teleosteans, which have combined with other characters, the gill-openings very much reduced). Placed as a group in Acanthopterygii (Acanthopteri) by Jordan and Evermann.²

SUB-ORDER 1 SCLERODERMI

Family CXII Balistidae

Genus 332 *Balistes*
carolinensis 563 (Trigger-fish)

*Family CXIII Monacanthidae.*³ Included in Balistidae by some.

Genus 333 *Monacanthus*
hispidus 564 (File-fish)

SUB-ORDER 2 GYMNOBONTES

Family CXIV Diodontidae

Genus 334 *Chilomycterus*
schæpfi 565 (Common Burr-fish)

Family CXV Molidae

Genus 335 *Mola*
mola 566 (Sun-fish; Head-fish)

¹"Remotely related to the Scombriform fishes, and perhaps derived from the same ancestral stock as the *Trichiuridae*." Jordan and Evermann.

²"From the *Squamipinnæ* the *Plectognathi* are certainly descended." "The close connection of these groups leads us to subordinate the *Plectognathi* to the *Acanthopteri* and to place its 3 sub-orders in their natural position as an offshoot from the *Squamipinnæ*." Jordan and Evermann.

³"Closely allied to the *Balistidae*, differing chiefly in having the first dorsal represented by a single spine, behind which is sometimes a rudiment." Jordan and Evermann.

CHECK LIST

1. **Myxine limosa*** Girard.
American Hagfish.
Marine. Parasitic: burrowing into the flesh of fishes.
Coast of North America, south to Cape Cod: recorded from Grand Manan, New Brunswick (Girard, 1858): also recorded from Devil's Island, some 70 miles off Nova Scotia, at a depth of 54 fathoms (Honeyman, 1886, as *M. glutinosa*).
2. **Polistotrema stouti** Lockington. (Plate XIII, figures 151 and 152).
California Hagfish.
Marine. Parasitic: burrowing into the flesh of fishes.
Ranges from coast of Vancouver Island southward to coast of California.
3. **Petromyzon marinus** Linnaeus.
Great Sea Lamprey.
Anadromous. Parasitic: attaching itself to fishes.
Maritime Provinces, and Gaspé Bay (Stafford, 1905-1906), and presumably Gulf of St. Lawrence, perhaps extending still further north: "often found attached to the Mackerel" at Tignish, Prince Edward Island (Cornish): Atlantic coast of North America and Europe, including the British Isles—south on the American side to Chesapeake Bay: according to Yarrell (1859) found in the Mediterranean, and according to him included among the fishes of Iceland by Reinhardt: "also found on the west coast of Africa" (Bridge, 1910).
4. **Petromyzon marinus unicolor** De Kay.
Landlocked Lamprey.
Landlocked in lakes. Parasitic: attaching itself to fishes.
Recorded from Lake Champlain (De Kay, 1842, as *Ammocetes unicolor*—larva): occurs in northern and central lakes of State of New York; abounding in Cayuga Lake.
5. **Ichthyomyzon concolor** Kirtland.
Silver Lamprey.
Lacustrine and fluviatile. Parasitic: attaching itself to fishes.
St. Lawrence River and Great Lakes region: presumably Michipicoten River (Agassiz, 1850, as *Ammocetes borealis*): Hill River, Hudson Bay region (Preble, 1900): upper Mississippi Valley.
6. **Ichthyomyzon castaneus** Girard.
Northern Lamprey.
Fluviatile. Parasitic: attaching itself to fishes.
Assiniboine River, Portage la Prairie, Manitoba (Thompson Seton, 1898); and locally recorded from the States of Minnesota, Kansas, Arkansas, and Louisiana.

*The European Hagfish (*M. glutinosa*) and the American Hagfish (*M. limosa*) have long been regarded as forms of one and the same species. Characters which specifically diagnose them have been pointed out in "A Revision of the Myxinoidea of the Genus *Myxine*," by Mr. C. Tate Regan, and are here quoted:—

Myxine glutinosa. 6 (exceptionally 7) branchial pouches. 7 to 9 teeth in the first series and 8 to 10 in the second, the 2 most anterior teeth in each series united. Pores 24-34+54-64+10-14. Length of head $3\frac{2}{3}$ to 4 in the total length.

Northern and western coast of Europe.

Myxine limosa. 6 branchial pouches. 9 teeth in the first series and 10 in the second, the two most anterior teeth in each series united. Pores 26+70+10. Length of head $3\frac{1}{2}$ in the total length.

Atlantic coasts of North America

It may be mentioned that in the "Revision" there is also a diagnosis, quoted below, of a new species *M. atlantica* from western North Atlantic, although it may not be indigenous to the coasts of Canada.

Myxine atlantica n. sp. 6 branchial pouches. 9 teeth in the first series and 8 in the second, the two most anterior teeth in each series united. Pores 28+64+12. Length of head $3\frac{1}{2}$ in the total length.

Western North Atlantic.

7. **Entosphenus tridentatus** Gairdner.
Three-toothed Lamprey.
Anadromous. Parasitic: attaching itself to fishes.
British Columbia: Pacific coast of North America, ranging from the Aleutian Islands to southern California.
8. **Lampetra aurea** Bean.
Brook Lamprey.
Mostly abounding in streams. Parasitic: attaching itself to fishes.
Yukon River, and presumably Great Slave Lake (Richardson, 1836, as *Petromyzon fluvialis*)*
streams of Alaska and Kamchatka.
9. **Lampetra cibaria** Girard.
Brook Lamprey.
Fluviatile. Parasitic: attaching itself to fishes.
Ranges from British Columbia southward to the Sacramento River, California.
10. **Lampetra wilderi** Gage.
Small Black Lamprey: Brook Lamprey.
Mostly abounding in rivers, and ascending small streams to spawn. Parasitic: attaching itself to fishes.
State of New York and Great Lakes region westward, and embracing the Ohio valley to the Mississippi valley: perhaps to be found in Ontario and Manitoba.†
11. **Notorhynchus maculatus** Ayres.
Cow Shark.
Marine.
Doubtless occurs in British Columbian waters as it is known to range from the coast of the State of Washington to California, and is "rather common northward, especially in Humboldt Bay" (Jordan and Evermann).
12. **Hexanchus corinus** Jordan and Gilbert.
Shovel-nosed Shark.
Marine.
Vancouver Island and Puget Sound, southward to Bay of Monterey, California.
13. **Catulus brunneus** Gilbert.
Cat Shark: Swell Shark.
Marine.
Specimen (very young) in the Provincial Museum, Victoria, from Nanaimo, Vancouver Island: coast of California.‡

*"*P. fluvialis*, Richardson, mentioned only as a small lamprey attached to an Inconnu in Great Slave Lake." Jordan and Evermann. "The proper identification of the specimen is uncertain; it is probably the same as *L. aurea*." Evermann and Goldsborough.

†"I am not positive as to the occurrence of this species in our waters, though I have often taken a small Lamprey in the northern and western streams of Ontario and in the rivers of Manitoba which I believe to be the Brook Lamprey." Nash.

‡At the time of the publication of Jordan and Evermann's 'Fishes of North and Middle America' (1896) only one specimen of this species was known, "a female with mature eggs."

14. *Galeorhinus zyopterus* Jordan and Gilbert.

Oil Shark: Tope.

Marine.

Ranges from coast of California, from San Francisco to Cerros Island, Lower California, Mexico: recorded from British Columbia.

15. *Prionace glauca* Linnæus.

Great Blue Shark.

Marine.

Maritime Provinces and Banks of Newfoundland: coasts of California and Brazil (Valenciennes, 1838, as *Squalus hirundinaceus*): more common in seas of Europe: "an inhabitant of the Mediterranean, and appears to occur much more frequently on the Devonshire and Cornish coasts than on any other part of the British Islands; it has been taken in the Bristol Channel, and in Swansea Bay; also off the south and east coasts of Ireland, and has been known to wander even as far north as Zetland" (Yarrell, 1859).

16. *Alopias vulpes* Gmelin.

Thresher.

Pelagic.

Very cosmopolitan in the seas: Atlantic and Pacific Oceans: "occasionally taken [in Nova Scotia] in fishing nets, to their great detriment—a fine specimen in the collection of King's College, Windsor, N.S." (Jones, 1879): according to Knight, Basin of Minas and Gulf of St. Lawrence* (1866, as *Carcharias vulpes*): also "Cumberland Bay and Bay des Chaleurs" (Cox, 1895): "commonest of the larger Sharks frequenting the British coasts" (Bridge, 1910): common in the Mediterranean: coast of New Zealand (Günther, 1880).

17. *Lamna cornubica* Gmelin.

Porbeagle: Mackerel Shark.

Pelagic.

Gulf of St. Lawrence and Maritime Provinces: north Atlantic and north Pacific: "occurs occasionally on the northern and frequently on the southern coasts of this country [Great Britain] and also on different parts of the Irish coast—not rare, according to Dr. Baillie, among the Orkney Islands" (Yarrell, 1859): "Haast has found this species also off the coast of New Zealand" (Günther, 1880).

18. *Carcharodon carcharias* Linnæus.

Great White Shark.

Pelagic.

Temperate and tropical seas: occasional on the Atlantic and Pacific coasts of North America, and for that reason included here: "found in all tropical and sub-tropical seas, from the Mediterranean to Australia and New Zealand" (Bridge, 1910, as *C. rondeletii*): Cape of Good Hope (Smith, 1842, as *C. capensis*): "its distribution evidently girdling the globe" (Jordan).

*Knight says:—"It is a great enemy to the small whales in the Gulf of St. Lawrence."

PLATE V.

- 25 30. *Oncorhynchus kisutch* (Coho or Silver Salmon)
(Showing seasonal characteristics)
31. *Oncorhynchus tshawytscha* (Quinnat or Spring Salmon)
(Showing spawning characteristic)

PLATE 1

PLATE 1
PLATE 1
PLATE 1

(Zoning characteristics)

PLATE 1
PLATE 1
PLATE 1

(Zoning characteristics)

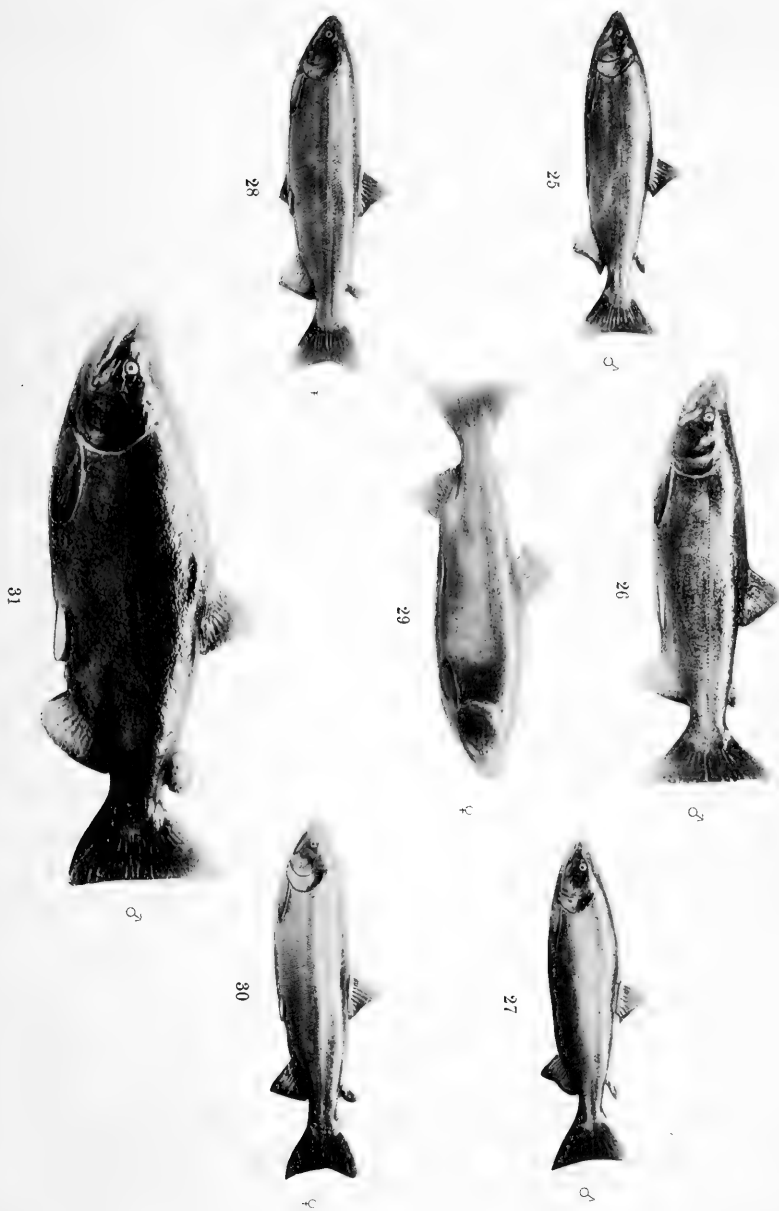
PLATE 1
PLATE 1
PLATE 1

PLATE 1

PLATE 1

PLATE 1

PLATE 1



19. *Cetorhinus maximus* Gunner.

Basking Shark.

Pelagic.

Maritime Provinces and British Columbia: Arctic seas, southward on the American sides to Virginia and California, and on the European side to Portugal, and the Mediterranean: according to Bridge (1910) "fairly common off the coasts of Scotland, and it has been seen or captured at various points on the western coast of Ireland, and the eastern and southern coasts of England," and according to him "although generally described as a northern form *Cetorhinus* is known to occur in Australian waters."

20. *Squalus acanthias* Linnæus. (Plate I, figure 1).

Picked Dogfish.

Marine.

Coast of Labrador (Storer, 1850 and 1853): Gulf of St. Lawrence, Gaspé Bay, and Maritime Provinces: "at Tignish the picked dogfish is very common and extremely destructive" (Cornish): both coasts of north Atlantic, extending south to Cuba on the American side: Knight says—"found everywhere on the coast of North America, from the Delaware to Davis' Straits" (1866, as *Spinax acanthus*): common on coasts of the British Islands, including the Orkney Islands (Yarrell, 1859), and other European coasts.

21. *Squalus sucklii* Girard.

California Dogfish.

Marine.

British Columbia: ranges from the Aleutian Islands to California: once recorded from Bering Island, Bering Sea ((Stejneger): *S. fernandinus* Molina, of Chile perhaps referable to this species.

22. *Centroscymnus cœlolepis* Bocage and Capello.

Spiny Dogfish.

Marine.

"Abundant on the fishing banks" off the coast of Nova Scotia (Jones, 1879): occasional off the coast of Massachusetts: coast of Portugal and adjacent coasts of the Atlantic.

23. *Centroscyllium fabricii* Reinhardt.

Spiny Dogfish.

Marine.

Arctic seas and coasts of Greenland: "fishing banks off the coast" of Nova Scotia (Jones, 1879): occasional off the coast of Massachusetts: also said to be found "in the opposite hemisphere at the Falkland Islands" (Bridge, 1910).

24. *Somniosus microcephalus* Bloch.

Sleepor Shark: Greenland Shark.

Marine.

Arctic seas: coast of Labrador: "the only specimen of this rare northern form the author has had the opportunity of examining was taken off Halifax Harbour in February 1863" (Jones, 1879, as *Læmarqus borealis*): an individual from opposite the mouth of the Saguenay River, Province of Quebec (Whiteaves, 1886): on the American sides south to Cape Cod, and coast of Oregon: "numerous instances are recorded of its capture off the coast of Great Britain, especially in northern waters" (Bridge, 1910); and recorded from other European coasts, ranging southward to France.

25. *Pristis pectinatus* Latham.
Common Sawfish.
Marine.
"West Indies and Florida; abundant in the Gulf of Mexico; ascending the lower Mississippi":
"occurs northward at least to Beaufort, North Carolina" (Jordan and Evermann): once,
but long ago, recorded from coast of Nova Scotia (Denys, 1672).*
26. *Raja erinacea* Mitchill.
Common Skate.
Marine.
Gulf of St. Lawrence, Gaspé Bay, and Maritime Provinces, including Grand Manan, Bay of
Fundy: in the United States from the coast of Maine southward to Virginia.
27. *Raja ocellata* Mitchill.
Big Skate.
Marine.
Maritime Provinces to the coast of the State of New York.
28. *Raja fyllæ* Lütken.
Marine.
Based upon a small specimen, some 8 inches in length, from Davis Straits, Greenland (Lütken,
1887): given here owing to its occurrence in Davis Straits.
29. *Raja radiata* Donovan. (Plate I, figure 2).
Starry Ray.
Marine.
Both sides of North Atlantic: on the American side seemingly recorded at least as far south
as Staten Island, State of New York (De Kay, 1842, as *R. americana*): Maritime Prov-
inces, including the Bay of Fundy: common on the eastern coast of Nova Scotia
(Cornish, 1901-2): on the eastern side of the Atlantic "inhabits the northern seas only,
extending from the British Isles to Iceland and Greenland, the coast of Norway, and
the Baltic as far as Scania" (Yarrell, 1859, on the authority of the *Skandinaviens*
Fisker).
Fisker).
30. *Raja senta* Garman.
Marine.
Questionable on the coast of Labrador† (Schmitt, 1904): Banks of Newfoundland southward
to Cape Cod.
31. *Raja lævis* Mitchill.
Barn-door Skate.
Marine.
Maritime Provinces and Atlantic coast of United States south to coast of Florida.

*"L'espadon est un poisson gros comme une vache, de six à huit piéds de longueur, qui va en diminuant vers la queue; il a sur le nez un espadon, dont il prend le nom, qui est long d'environ trois piéds, large d'environ quatre bons doigts; il y a de deux costez de cet espadon des pointes longues d'un pouce, de pareille distance les uns des autres, et va étraississant vers le bout; il ne ploye point et est dur et fort roide." L'Histoire Naturelle, par Nicholas Denys, Paris, 1672: quoted after Cox.

†Queried by Kendall in his 'Check List of the Fishes recorded from the Labrador Peninsula.'

32. *Raja granulata** Gill.
Marine.
"This new species is given in Messrs. Goode and Bean's list of N. E. American Fishes as occurring on La Have fishing bank" (Jones, 1879).
33. *Raja rhina* Jordan and Gilbert.
Marine.
Recorded from Departure Bay, Vancouver Island; ranges from coast of Alaska southward to Bay of Monterey, California.
34. *Raja binoculata* Girard.
Big-Skate-of-California.
Marine.
British Columbia: ranges from coast of Alaska southward to Bay of Monterey, California.
35. *Raja stellulata* Jordan and Gilbert.
Marine.
British Columbia: ranges from Unalaska, Aleutian Islands, southward to Santa Barbara, California.
36. *Raja abyssicola* Gilbert and Thoburn.
Deep Sea Ray.
Bathybial.
Off Queen Charlotte Islands, British Columbia: known from a single male specimen, obtained at a depth of 1,588 fathoms.†
37. *Dasyatis centrura* Mitchill.
Common Sting Ray.
Marine.
May possibly be found in the Bay of Fundy as it is known to range from Cape Hatteras to the coast of Maine.
38. *Chimaera affinis* Capello.
Chimaera.
Bathybial.
Atlantic Ocean: said to occur on the American coast as far south as Cape Cod: "a specimen collected on the south-eastern portion of La Have Bank"‡; Gulf Stream (Gill, 1877, as *Ch. plumbea*), and Lat. 40° N., Long. 60° W., (Gill, 1883, as *Ch. abbreviata*): recorded from off the coast of Portugal (Günther, 1880).
39. *Hydrolagus collieri* Lay and Bennett. (Plate XIII, figures 154 and 155).
Ratfish.
Marine.
British Columbia: ranges from coast of Alaska southward to Bay of Monterey, California: "especially plentiful off South-eastern Alaska, and about the wharves at Esquimalt" (Bridge, 1910).

*"A doubtful species, imperfectly described, apparently not different from *R. laevis*." Jordan and Evermann.

†No ray was ever found at any such a depth as this before. A ray from a depth of 565 fathoms is included in the list of deep-sea fishes obtained by the dredgings of the 'Challenger' (Günther); and "*R. mamillidons*, a uniform jet-black species, has been obtained from a depth of 597 fathoms in the Bay of Bengal" (Bridge), but so far as available records show none have been obtained at a greater depth than some 600 fathoms except this one.

‡This specimen is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. XIX.

40. *Polyodon spathula* Walbaum.

Paddlefish.

Lacustrine and fluviatile.

Exceedingly rare in Canada—the following appearing to be its records: Lake Huron, near Sarnia, Ontario (two specimens);* Spanish River, District of Sudbury (one specimen); Lake Helen, Nipigon River (one specimen); Lake Erie (if from the Canadian side of the lake—one specimen): plentiful in the Mississippi valley and southern United States: also recorded from Ohio River (Le Sueur, 1817, as *Platirostra edentula*; and Rafinesque, 1820, as *Acipenser lagenarius*); and from Lake Ontario (Rafinesque, 1820, as *Proceros vittatus*).

41. *Acipenser transmontanus* Richardson.

White Sturgeon.

Either anadromous or remaining permanently in fresh water.

British Columbia: recorded from Pine Island Lake and Saskatchewan River (Richardson, 1836): extends from Alaska southward to Monterey, California.

42. *Acipenser medirostris* Ayres.

Green Sturgeon.

Frequents the sea or brackish water, seldom entering rivers beyond their mouths.

British Columbia: ranges from San Francisco northward: "not common north of the Straits of Fuca" (Jordan and Evermann).

43. *Acipenser sturio oxyrhynchus*† Mitchill. (Plate I, figure 3).

Common Sturgeon.

Anadromous—perhaps spawning in brackish as well as in fresh water.

Maritime Provinces and St. Lawrence River and tributaries: although a coastwise sturgeon reported from Manitoba and from northern lakes of the interior (Eigenmann, 1894): in the United States ranging from Maine to South Carolina.

44. *Acipenser rubicundus* Le Sueur.

Lake Sturgeon.

Lacustrine and fluviatile.

Provinces of Ontario and Quebec: St. Lawrence River, Lake of the Woods, and Prairie Provinces: also recorded from Labrador; Hudson Bay; and Albany River, Rupert Land (Richardson, 1836, as *A. rupertianus*): Mississippi and Ohio valleys and tributary waters.

45. *Acipenser brevirostrum* Le Sueur.

Short-nosed Sturgeon.

Anadromous: entering the larger rivers and estuaries.

Recorded from St. Lawrence River and tributaries (Fortin, 1864): said to range in the United States from Cape Cod to Florida: reported from the coast of Texas.

*"Old fishermen near Point Edward on the Lambton county shore vaguely refer to other specimens occurring in Lake Huron." Prince.

†This is a sub-species of the common sturgeon (*A. sturio*) of Europe, from which it chiefly differs in the number and character of the stellate ossifications.

46. *Lepidosteus osseus* Linnaeus. (Plate I, figures 4 and 5).
Common Garpike.
Lacustrine and fluviatile.
St. Lawrence River, and Provinces of Ontario and Quebec, westward to Lake Huron: very plentiful near Belleville, Bay of Quinte: in the United States ranges from Vermont westward to the Great Lakes region and southward to the Rio Grande.
47. *Lepidosteus platostomus* Rafinesque.
Short-nosed Garpike.
Lacustrine and fluviatile.
Not common in Canada: Great Lakes region, and Ohio and Mississippi valleys.
48. *Amia calva* Linnaeus. (Plate I, figures 6 and 7).
Bowfin: Dogfish.
Lacustrine and fluviatile.
St. Lawrence River, and Provinces of Ontario and Quebec, westward to Lake Huron: very plentiful near Belleville, Bay of Quinte: in the United States, ranges from the Mississippi valley and Great Lakes region southward to the southern States.
49. *Tarpon atlanticus* Cuvier and Valenciennes.
Tarpon.
Marine, and fluviatile in that it ascends rivers from the sea.
Ordinarily ranges from Long Island to Brazil: common on coast of Florida: also occurs on the coasts of the West Indies: "common about Porto Rico where it evidently breeds, as numerous immature individuals were taken at Hucares and Fajardo" (Evermann and Marsh, 1899): twice recorded from Nova Scotia, from off Isaac's Harbour, and from Harrigan Cove in eel-grass.*
50. *Albula vulpes* Linnaeus.
Lady-fish.
Marine.
All warm and tropical seas: ordinarily ranges on the American coasts northward to Long Island: a specimen obtained in September 1911, at Black's Harbour, Bay of Fundy, New Brunswick.†
51. *Hyodon alosoides* Rafinesque.
Shad Mooneye.
Lacustrine and fluviatile.
Manitoba and presumably Saskatchewan: Ohio River region.

*This specimen which was speared on 6th September, 1906, is in the Provincial Museum at Halifax.

†This specimen was received from Mr. William McIntosh, Curator of the Museum of the Natural History Society of New Brunswick, for identification. Not having seen the lady-fish before, and as the preservatives have considerably altered the appearance of the specimen, I should mention that it differs at least in one particular from descriptions and figures, viz.—the snout does not appear to overlap the mouth. But as this species passes through a metamorphosis, being at first a band-shaped larval form, and as this specimen is only about 7 inches in length, whereas the species attains a length of from 1½ ft. to 3 ft., possibly every character had not been completed even although in effect the fish had passed through its metamorphosis when not more than an inch or two in length. This I do not know, but other external characters, particularly the heavy adipose covers over the eyes, appear to determine it a specimen of the lady-fish. Internal characters could not be examined, as all the organs had become pasty and undecipherable.

52. *Hyodon chrysopsis* Richardson.
Western Goldeye.
Lacustrine and fluviatile.
Provinces of Manitoba and Saskatchewan.
53. *Hyodon tergisus*, Le Sueur. (Plate VIII, figures 60 and 61).
Mooneye: Toothed Herring.
Lacustrine and fluviatile.
Provinces of Ontario and Quebec, including the St. Lawrence and Ottawa Rivers and Lake St. Peter (Montpetit, 1897); Great Lakes region, including Lake of the Woods: Ohio and Mississippi valleys.
54. *Dorosoma cepedianum* Le Sueur.
Gizzard Shad: Hickory Shad.
Marine, in brackish water, lacustrine, sometimes landlocked, and fluviatile.
Recorded from St. John River, Fredericton, New Brunswick: "no doubt occurs in the St. Lawrence and doubtless also in the Ottawa River"* (Prince, 1909): ranges along the Atlantic coast at least from Cape Cod to Mexico; and extends westward in the United States to the Mississippi: introduced into Lakes Erie and Michigan.
55. *Clupea harengus* Linnaeus. (Plate VIII, figures 62 and 63)
Common Herring.
Marine: but according to Boulenger, as first shewn by Günther, the fry or 'white-bait' have a predilection for brackish water.
Temperate and colder parts of the northern Atlantic and seas of Europe, including the British Isles: most abundant on the American side north of Cape Cod, extending to the coast of Labrador and embracing Newfoundland: occurs in Gaspé Bay (Stafford, 1905-1906): recorded from south shore of River St. Lawrence (Fortin, 1862, as *C. sar-dina*): extends in the United States as far south as Cape Hatteras, North Carolina.
56. *Clupea pallasii* Cuvier and Valenciennes. (Plate VIII, figures 64 and 65).
California Herring.
Marine.
British Columbia and Puget Sound: ranging over the entire Pacific coast from San Diego, California, to Alaska and Kamchatka.
57. *Clupanodon caeruleus* Girard.
California Sardine.
Marine.
British Columbia and Puget Sound, extending southward to Magdalena Bay, Lower California.
58. *Pomolobus chrysochloris* Rafinesque.
Blue Herring: Skipjack.
Lacustrine and fluviatile.
Great Lakes (at least Lakes Erie and Michigan into which it has introduced itself through the canals): Ohio River (Rafinesque, 1820), Mississippi Valley, and enters the Gulf of Mexico.

*This, quoted from a review of Mr. C. W. Nash's 'Check List of the Fishes of Ontario', as to the occurrence of the fish in the Ottawa River at least needs substantiating.

59. *Pomolobus mediocris* Mitchill.
Hickory Shad: Fall Herring.
Marine.
Recorded from vicinity of Campobello Island, New Brunswick. (Cox, 1895, as *Clupea mediocris*):
extends from Cape Cod to coast of Florida.
60. *Pomolobus pseudoharengus* Wilson.
Gaspereau: Alewife.
Anadromous or landlocked.
Widely distributed from the coasts of the Maritime Provinces and Labrador, and embracing
the St. Lawrence River, to Lake Ontario, in which lake it is very abundant: extends
along the Atlantic coast of the United States from Maine southward to the Carolinas:
occurs landlocked in certain lakes of the State of New York.
61. *Pomolobus æstivalis* Mitchill.
Glut Herring.
Anadromous.
Extends from the Maritime Provinces to the Carolinas, but more abundant southward than
northward.
62. *Alosa sapidissima* Wilson. (Plate VII, figure 59).
American Shad.
Anadromous.
Extends, or did extend, from Labrador, Newfoundland, Gulf of St. Lawrence, and Maritime
Provinces, to the Gulf of Mexico; but its distribution in our waters more limited and
local than formerly: "occasional in Baie-des-Chaleurs" (Cox, 1895): still frequents
the shores of St. John and Albert Counties, and ascends the St. John River, New Bruns-
wick; as well as occurring in Chignecto, Cobequid and St. Marys Bays, and Bay Verte,
Maritime Provinces: mentioned as occurring in Gaspé Bay (Stafford, 1905-1906, as
Clupea sapidissima): "formerly abundant in the lower Ottawa, but has abandoned that
river, and its occurrence within our boundaries [Ontario] is now only accidental" (Nash,
1908,): has been introduced into Pacific coast waters by the United States Fish Com-
mission, and has "been established in several of the tributaries of the Mississippi River,
notably the Ohio River" (Goode, 1888).
63. *Brevoortia tyrannus* Latrobe. (Plate VIII, figures 66 and 67).
Menhaden: Mossbunker.
Marine: "probably spawning in brackish water."
Ranges from Nova Scotia, at least from St. Marys Bay, southward to Brazil;* and mentioned
by Jones (1879) in his "List of the Fishes of Nova Scotia" on the authority of Dr. Gilpin:
being migratorially erratic, its geographical range varies greatly from year to year:
according to Goode (1888), as defined for 1877, its wanderings "bounded by the parallels
of north latitude 25° and 45°; on the continental side by the line of brackish water; on
the east by the inner boundary of the Gulf Stream."†

*"Represented on the coast of Brazil by *Brevoortia tyrannus aurea* Agassiz." Jordan and Evermann.

†Goode goes on to say:—"In the summer it occurs in the coastal waters of all the Atlantic States from Maine to Florida, in winter only south to Cape Hatteras: the limits of its winter migration oceanwards cannot be defined, though it is demonstrated that the species does not occur about the Bermudas or Cuba, nor presumably in the Caribbean Sea."

64. **Engraulis mordax** Girard.
California Anchovy.
Marine.
British Columbia: ranges from southern Alaska to coast of Lower California, Mexico.
65. **Mitchillina bairdii** Goode and Bean.
Bathybial.
Grand Banks of Newfoundland (Goode and Bean, 1879, as *Alepocephalus bairdii*).
66. **Coregonus coulterii** Eigenmann and Eigenmann.
Coulter's Whitefish.
Fluviatile.
Kicking Horse River at Field and Golden, British Columbia.
67. **Coregonus williamsoni** Girard.
Rocky Mountain Whitefish.
Lacustrine and fluviatile: frequenting clear waters.
Ranges from Alberta and Montana westward to coasts of British Columbia and States of Washington and Oregon; and southeastward to Utah.
68. **Coregonus kennicotti** Milner.
Broad Whitefish.
Lacustrine and fluviatile.
Mackenzie and Yukon Rivers, and certain rivers of Alaska: also Great Bear Lake, and Lake Bennett (Evermann and Goldsborough, 1907): the type from Fort Good Hope (Milner, 1883): possible record Hudson Bay (Pennant, 1788, as *Salmo lavaretus*).
69. **Coregonus richardsonii*** Günther.
Richardson's Whitefish.
Fluviatile.
The type from Arctic North America—locality unknown (Günther, 1866): Mackenzie River Basin (Preble, 1903-4).
70. **Coregonus quadrilateralis** Richardson.
Round Whitefish: Shad-Waiter.
Mostly lacustrine, seldom entering rivers.
Most widely distributed of our whitefishes: extending from Labrador, New Brunswick, and the New England States to British Columbia, Alaska, and the Arctic regions; and embracing within its range Hudson Bay (Richardson, 1823), Bathurst Inlet and Great Bear Lake (Richardson, 1836), Fort Enterprise (type locality), and Great Lakes region.

*"A doubtful species, perhaps identical with *Coregonus kennicotti*, or possibly with *Coregonus nelsonii*," Jordan and Evermann.

PLATE VI.

32-38. *Oncorhynchus nerka* (Sockeye Salmon)

(Showing seasonal characteristics)

39-40. *Salmo gairdneri* (Steelhead Salmon)

1974

39-40. *Salmo rivularis* (Steinfeldt Salmon) (showing seasonal characteristics)



71. *Coregonus clupeiformis* Mitchill. (Plate VII, figures 55 and 56).
Common Whitefish.
Mostly lacustrine.
Collectively records repute its distribution to be from Labrador and New Brunswick to the Prairie Provinces and northward;* abundant in the Great Lakes, especially in Lake Erie; its spawning beds being perhaps more especially on the Canadian side of the lake.
72. *Coregonus nelsonii* Bean.
Humpback Whitefish.
Lacustrine.
Recorded from Lake Bennett, British Columbia (Evermann and Goldsborough, 1907), and from Alaska.
73. *Coregonus labradoricus* Richardson.
Labrador Whitefish; Sault Whitefish.
Lacustrine and fluviatile.
Distributed from Labrador, Province of Quebec, and New Brunswick, to the Prairie Provinces, embracing the Great Lakes region, including Lake of the Woods; abundant at Sault Ste. Marie; in the United States extending from the "Great Lakes region to the lakes of the Adirondacks and White Mountains, and northeastward" (Jordan and Evermann).
74. *Argyrosomus osmeriformis* H. M. Smith.
Smelt-of-the-New-York-Lakes.
Lacustrine.
Provisionally included here: "has been recorded only from Seneca and Skaneateles lakes, New York, where it is known as smelt; it doubtless inhabits others of the deep-water lakes of northern New York" (Jordan and Evermann); and possibly may be found in Ontario waters.
75. *Argyrosomus artedi* Le Sueur. (Plate VII, figures 57 and 58).
Cisco; Lake Herring.
Lacustrine.
Ranges from Province of Quebec and State of Vermont, occurring in Lakes Champlain and Memphremagog, and in Thirty-one mile Lake, some 60 miles north of Ottawa (Shields, 1897) westward to Lake Superior; abundant in Lake Erie; extends northward to the Hudson Bay region and to Labrador.
76. *Argyrosomus hoyi* Gill.
Mooneye Cisco.
Lacustrine.
"Thus far known [1902] only from Lake Michigan and possibly from Lake Superior" (Jordan and Evermann): questionable in our waters.

*"It is to be found throughout the Great Lakes region from Lake Champlain to Lake Superior, and possibly to Lake Winnipeg. It has been reported commercially from Lake of the Woods, Lake Winnipeg and Northwest Territory, but all references to its occurrence west of Lake Superior need verification. All specimens of so-called whitefish from Lake of the Woods which have been examined by any ichthyologist belong to a different species—the Labrador whitefish (*Coregonus labradoricus*), and this is doubtless the species which the Canadian Fish Commission reports call the 'whitefish' when referring to localities west of Lake Superior." Jordan and Evermann.

77. *Argyrosomus pusillus* Bean.
Least Whitefish.
Fluviatile.
Barter Island, off Alaska, near the mouth of the Mackenzie River (Seofield, 1899): occurs in the Yukon River and "practically all of Alaska except the south-eastern portion" (Jordan and Evermann): will perhaps be found in British Columbia.
78. *Argyrosomus lucidus* Richardson.
Great-Bear-Lake-Herring.
Lacustrine and fluviatile.
Mackenzie River and tributaries: Great Bear Lake (Richardson, 1836, as *Salmo* (*Coregonus*) *lucidus*): Great Bear Lake River (Gilbert, 1894, as *Coregonus lucidus*): Herschel Island (Seofield, 1899): Arctic Red River (Preble, 1903-4).
79. *Argyrosomus laurettæ* Bean.
Lauretta Cisco.
Fluviatile.
Yukon River northward to Point Barrow, Alaska: perhaps British Columbia.
80. *Argyrosomus prognathus** H. M. Smith.
Bloater: Long Jaw.
Lacustrine.
Basins of the Great Lakes, with the possible exception of Lake Erie.
81. *Argyrosomus nigripinnis* Gill.
Blackfin: Bluefin.
Lacustrine.
Lake Michigan and certain lakes of Wisconsin and Minnesota: also reported from Lake Superior.†
82. *Argyrosomus tullibee* Richardson.
Tullibee.
Lacustrine.
Occurs in Lakes Erie, Superior, and Michigan; and in Lake Onondaga, State of New York: also in Lake of the Woods, and in the Provinces of Manitoba and Saskatchewan—frequenting the Qu'Appelle Lakes near the middle of the chain: recorded from Pine Island Lake and from Albany River region (Richardson, 1836, as *Salmo* (*Coregonus*) *tullibee*).
83. *Stenodus mackenzii* Richardson.
Inconnu.
Fluviatile and lacustrine.
Mackenzie and Yukon Rivers and their tributary waters: also recorded from Salt River (Richardson, 1823, as *Salmo mackenzii*—the type), and from Great Slave Lake (Richardson, 1836): perhaps identical with *S. leucichthys* of Siberia.

*"This species and *A. osmeriformis* have been confounded under the name *Coregonus hoyi*, though neither much resembles the original of that name." Jordan and Evermann. *A. hoyi*, unless to be found in Lake Superior does not seem to belong to our waters; but is given provisionally in the Check List under number 76.

†"It has also been reported from Lake Superior, but all the specimens of so-called blackfin or bluefin that we have seen from that Lake are the long jaw" [*A. prognathus*]. Jordan and Evermann.

84. **Oncorhynchus gorbuscha** Walbaum. (Plate II, figures 8-13).
Humpback Salmon.
Anadromous.
British Columbia: both coasts of the Pacific and their slopes, ranging from California to Kamchatka, and extending northward.
85. **Oncorhynchus keta** Walbaum. (Plate III, figures 14-19).
Dog Salmon.
Anadromous.
British Columbia: both coasts of the Pacific and their slopes, ranging from California to Bering Straits, Kamchatka, and Japan—being “by far the most abundant species of salmon” in Japan (Jordan).
86. **Oncorhynchus tshawytscha** Walbaum. (Plates IV and V, figures 20-24 and 31).
Spring Salmon: Quinnet: King Salmon.
Anadromous.
British Columbia: both coasts of the Pacific and their slopes, ranging from California to Bering Straits and China.
87. **Oncorhynchus kisutch** Walbaum. (Plate V, figures 25-30).
Coho: Silver Salmon.
Anadromous.
British Columbia: both coasts of the Pacific and their slopes, ranging on the American side from California to Alaska, and on the Asiatic side southward to Japan.
88. **Oncorhynchus nerka** Walbaum. (Plate VI, figures 32-38).
Sockeye Salmon: Blue-back Salmon.
Anadromous.
British Columbia: both coasts of the Pacific and their slopes, ranging on the American side from Oregon to Alaska; and on the Asiatic side southward to Japan, being landlocked in Lake Akan in northern Hokkaido (Jordan).
89. **Oncorhynchus kennerlyi** Suckley.
Kennerly's Salmon: Little Redfish.
Lacustrine and fluviatile, and perhaps anadromous.
Certain lakes of British Columbia, and the States of Washington, Oregon, and Idaho.
90. **Salmo salar** Linnæus. (Plate VII, figure 41).
Atlantic Salmon.
Anadromous.
Both coasts of the Atlantic and its affluents: Maritime Provinces, Gaspe Bay, St. Lawrence River and Gulf with their tributary waters, including La Riviere Jupiter, Anticosti Island (Schmitt, 1904): formerly Lake Ontario: recently (1905) one specimen found near South Bay, Manitoulin Island, Lake Huron: Newfoundland and Labrador: recorded from Hudson Bay (Pennant, 1788): northeastern States of North America, and the Delaware River: lakes and rivers of Greenland (Fabricius, 1780): seas and rivers of Europe, including Iceland, and entering the Baltic: southern limit of distribution in Europe, Galicia, Spain.

91. *Salmo salar sebago* Girard.
Landlocked Salmon.
Landlocked in lakes.
Certain lakes in New Brunswick, such as Loch Lomond and Seiff and Musquash Lakes; and of the States of Maine and New Hampshire: now more widely distributed by having been introduced into lakes of other localities.
92. *Salmo salar ouananiche* McCarthy.
Ouananiche.
Landlocked in lakes.
Saguenay River and Lake St. John regions, and lakes and rivers northward to the Ungava region, and eastward to Labrador: occurs also in lakes of Newfoundland—such as Red Indian and Terra Nova Lakes, and lakes at the head of Gambo River.
93. *Salmo clarkii* Richardson. (Plate VII, figures 42 and 43).
Cutthroat Trout.
Lacustrine and fluviatile, and coastwise: possibly entering the sea.
Southern Alberta and British Columbia: ranging from California perhaps as far north as Alaska.
94. *Salmo rivularis* Ayres. (Plate VI, figures 39 and 40).
Steelhead.
Anadromous.
British Columbia to California and eastward to the Mountains: extending as far north as Skagway, Alaska: introduced into Lake Superior by the United States Fish Commission, and since found in waters of Ontario.
95. *Salmo rivularis kamloops* Jordan.
Kamloops Trout.
Lacustrine.
Kamloops, Kootenay, Okanagan, and other lakes in British Columbia: certain lakes tributary to the Fraser and upper Columbia Rivers.
96. *Salmo irideus** Gibbons. (Plate VII, figures 44 and 45).
Rainbow Trout.
Fluviatile, and perhaps in a measure anadromous.
Ranges, under a number of varieties, from State of Washington to California: introduced into certain eastern waters, including Lake Superior, Nova Scotia, and Newfoundland:† records for British Columbia do not appear to be authentically supported.

*It is affirmed by some that the rainbow trout is only an earlier stage, in the course of development, of the steelhead, but as this matter appears to others open to question it is given provisionally in the check-list as constituting in itself a valid species.

†“The California Rainbow Trout has proved its great adaptability to the environment of Newfoundland waters.” Report of the Game and Inland Fisheries Board, Newfoundland, for the year 1910.

97. *Salmo trutta levenensis* Walker.
Loch Leven Trout.
Lacustrine.
Loch Leven, Fifeshire, and other Scottish lochs: lochs in north of England (Jordan): introduced into lakes of Newfoundland; and by the United States Fish Commission into Shoshone Lake, Yellowstone National Park, and elsewhere.
98. *Cristivomer namaycush** Walbaum. (Plate VII, figures 46 and 47).
Salmon Trout: Great Lake Trout.
Lacustrine and fluviatile.
Widely distributed from Labrador, the Maritime Provinces, and the State of Maine, to Vancouver Island, Alaska, and the Mackenzie River, northward to the Arctic Circle.
99. *Cristivomer namaycush siscowet* Agassiz.
Siscowet.
Lacustrine.
Lake Superior: occasional in lakes Huron and Erie.
100. *Salvelinus fontinalis*† Mitchill. (Plate VII, figures 48-50).
Speckled Trout: Brook Trout.
Fluviatile, lacustrine, and enters (as a sea-run variety—*immaculatus*) the sea.
Widely distributed in North America, presumably from the Arctic regions (but "the northern limits of its range being as yet not well ascertained"—Jordan, 1905) southward to Georgia and Alabama, and from Newfoundland to Saskatchewan.
101. *Salvelinus parkei* Suckley.
Dolly Varden Trout.
Lacustrine and fluviatile and entering the sea.
Ranges from California, embracing British Columbia, northward to Aleutian Islands, and Herschel Island, Beaufort Sea, Arctic Ocean (Seefield, 1899); and extending westward to the South Saskatchewan and Montana.
102. *Salvelinus alpinus alipes*‡ Richardson.
Long-finned Charr.
Lacustrine and fluviatile.
Arctic regions: lakes in Regent's Inlet, Boothia Felix (Richardson, 1835-6, as *Salmo alipes* and *Salmo nitidus*): lakes and rivers of Greenland (Fabricius, 1780, as *Salmo alpinus*).

*This species is subject to great variation, and although all the varieties bear the specific name of *namaycush* there is considerable reason for the popular distinctions such as salmon-trout, gray trout, and Mackinaw trout. Structurally, however, it has not appeared to ichthyologists that there are sufficient distinctions to warrant the separation of varieties into sub-species, except in the following.

†This species varies greatly in size and coloration according to the character of the waters in which it occurs. Nipigon Lake, Ontario, is noted for its large sized individuals.

‡This and the two following are regarded as varieties of the European charr (*S. alpinus*).

103. *Salvelinus alpinus stagnalis* Fabricius.
Greenland Charr.
Lacustrine and fluviatile.
Arctic regions: Regent's Inlet and rivers of Boothia Felix (Richardson, 1836, as *Salmo rossii*); Coppermine River (Richardson, 1823 and 1836 as *Salmo hearnii*); streams and ponds of Greenland; also recorded from Labrador.*
104. *Salvelinus alpinus arcturus* Günther.
Arctic Charr.
Lacustrine.
Victoria Lake, Fløeberg Beach, Arctic America, Lat. 82°, 34' (Günther, 1877, as *Salmo arcturus*).
105. *Salvelinus quassa naresi* Günther.
Nares Charr.
Lacustrine.
Arctic America: Discovery Bay and Cumberland Gulf.
106. *Salvelinus marstoni*† Garman. (Plate VII, figures 51 and 52).
Marston Trout: Red Canadian Trout.
Lacustrine.
Recorded from the following lakes, among others in the Province of Quebec: Lac de Marbre, near Ottawa; lakes of the Laurentides Club in the Lake St. John region; Lac a Cassette, Rimouski County; and Lake Sacacomie and the Red Lakes, Maskinonge County: the above records probably right at the southern limits of its distribution, and that the centre of its distribution is much further north.
107. *Thymallus signifer* Richardson.
Arctic Grayling.
Lacustrine and fluviatile.
Occurs in Lakes Bennett and Atkins, Forty-mile Creek, and other waters of the northern part of British Columbia: recorded from Great Slave Lake, Great Bear Lake, and Winter River regions (Richardson, 1823 and 1836): Mackenzie River and Alaska to the Arctic Ocean: Churchill River and tributaries, Hudson Bay.
108. *Thymallus tricolor* Cope.
Michigan Grayling.
Fluviatile.
Streams of the State of Michigan, and possibly to be found on the Ontario side of the St. Marys River: said to have been brought by Milbert from Lake Ontario (Cuvier and Valenciennes, 1848, as *T. ontariensis*).

*"Specimens from Greenland and Labrador in the U.S. National Museum have been identified and recorded as *Salmo stagnalis*. It is doubtful if this is a correct identification." Kendall. Various other records from Labrador.

†Here assigned specific instead of sub-specific rank. "A specimen of *Salmo* [*Salvelinus*] *marstoni* sent me some days ago indicates a more distinct species than was at first supposed Though quite distinct, the species is nearer *S. quassa* than any other." Garman. As a sub-species it would stand as:—*Salvelinus quassa marstoni*.

109. *Thymallus tricolor montanus* Milner.
Montana Grayling.
Fluviatile.
Southern Alberta?:* certain rivers of Montana, and Yellowstone National Park.
110. *Mallotus villosus* Müller.
Capelin.
Marine: sometimes ascending streams.
Ranges from the Arctic regions southward, on the Pacific coasts to British Columbia and Kamchatka, and on the Atlantic coast of North America, embracing Greenland, Labrador, Newfoundland, Gulf of St. Lawrence, Maritime Provinces, and New England States, to Cape Cod.
111. *Thaleichthys pacificus* Richardson.
Oolachan: Candlefish.
Anadromous in a measure.
British Columbia, ascending the Fraser and Naas Rivers: ranging from Oregon northward to Alaska.
112. *Osmerus thaleichthys* Ayres.
Pacific Smelt.
Marine.
British Columbia: ranges from California to Alaska.
113. *Osmerus mordax* Mitchill. (Plate VII, figures 53 and 54).
American Smelt.
Marine, fluviatile, and landlocked.
Atlantic coast of North America from Labrador to Virginia: lakes in Maritime Provinces, Province of Quebec, and New England States: Lac-des-Isles, Gatineau District, some sixty miles north of Ottawa.†
114. *Osmerus dentex* Steindachner.
Rainbow Herring.
Marine and fluviatile.
Naas River, British Columbia: Arctic Red River (Preble, 1903-4): Pacific coast from Alaska, embracing both coasts of Bering Sea, and extending southwestward to northern China.
115. *Mesopus pretiosus* Girard.
Surf Smelt.
Marine: spawns in the surf.
British Columbia, extending southward to California.

*A little salmonoid in rivers of southern Alberta, locally called the grayling, may be this sub-species.

†Whilst engaged in some fisheries matters in the month of May, 1903, I found some specimens of the American Smelt floating dead on the surface of the water of Lac des Isles, in the Gatineau district, P.Q. It is known that this species of fish exists land-locked in fresh water lakes in New Brunswick, Nova Scotia, and in the State of Maine, but its occurrence in a lake so far away from the sea as Lac des Isles, is perhaps worthy of mention. The specimens are dwarfed, otherwise the external characters appear to agree with the ordinary *Osmerus mordax*.

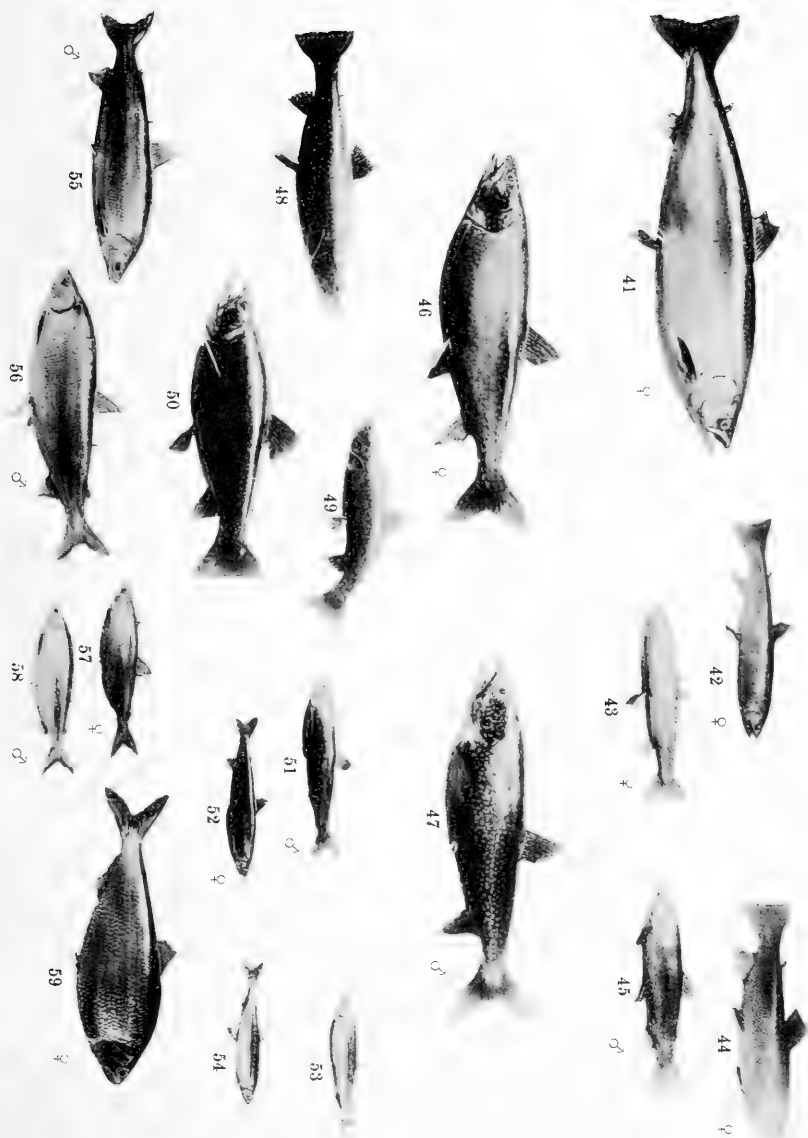
116. **Argentina silus** Arcanuis.
Argentine: Siel Smelt.
Marine.
Grand Banks, Newfoundland: a specimen from the stomach of a codling (*Phycis tenuis*) off Sable Island, Nova Scotia (Goode and Bean, 1878, as *A. syrtensium*): occasional on the coast of Maine, and off the coasts of northern Europe.
117. **Bathylagus pacificus** Gilbert.
Deep-sea Smelt.
Bathybial.
Coast of State of Washington: "two specimens taken in 685 and 877 fathoms" (Jordan and Evermann): given here as likely to occur in British Columbian waters.
118. **Chauliodus macouni** Bean.
Viperfish.
Bathybial.
Off Queen Charlotte Islands, British Columbia (the type—in 876 fathoms): extending southward to coast of California.
119. **Chauliodus sloanei** Bloch and Schneider.
Viperfish.
Bathybial.
Atlantic Ocean and Mediterranean: a specimen found in the stomach of a cod-fish at George's Banks—lat. 42° 08' N., long 65° 35' W., in 185 fathoms.
120. **Sternoptyx diaphana** Hermann.
Bathybial and pelagic—"rising toward the surface at night or in stormy weather."
Grand Banks, Newfoundland, southward to Santa Cruz Island, and recorded from Jamaica (Hermann, 1771): also off the Hawaiian and Japanese Islands.
121. **Argyropelecus olfersi** Cuvier.
Bathybial and pelagic—"rising toward the surface at night or in stormy weather."
Grand Banks, Newfoundland: open Atlantic, extending to the coasts of Brazil, Cape of Good Hope, and Norway.
122. **Stomias ferox** Reinhardt.
Bathybial.
East Banquereau: ranging from Greenland southward to the Bahama Channel.
123. **Malacosteus niger** Ayres.
Bathybial.
A specimen collected on the northeastern edge of George's Bank by the schooner *Alice G. Wonson* in 125 fathoms: Gulf Stream southward to the Barbadoes.
124. **Ictalurus punctatus** Rafinesque.
Channel Catfish.
Abounding especially in river channels.
Rivers of Great Lakes region westward to Manitoba: Mississippi valley, and streams tributary to the Gulf of Mexico.

PLATE VII.

41. *Salmo salar* (Atlantic Salmon)
42-43. *Salmo clarkii* (Cutthroat Trout)
44-45. *Salmo irideus* (Rainbow Trout)
46-47. *Cristivomer namaycush* (Salmon Trout)
48-50. *Salvelinus fontinalis* (Speckled Trout)
51-52. *Salvelinus marstoni* (Red Canadian Trout)
53-54. *Osmerus mordax* (American Smelt)
55-56. *Coregonus clupeaformis* (Common Whitefish)
57-58. *Argyrosomus artemi* (Cisco or Lake Herring)
59. *Alosa sapidissima* (American Shad)

PLATE VII.

41. *Salmo salar* (Atlantic Salmon)
- 42-43. *Salmo clarki* (Cutthroat Trout)
44. *Salmo gairdneri* (Rainbow Trout)
- 45-46. *Gasterosteus aculeatus* (Spiny-throated Thistlefish)
47. *Salvelinus fontinalis* (Brook Trout)
48. *Salvelinus namaycush* (Lake Trout)
49. *Salvelinus leucomaenis* (Arctic Char)
50. *Salvelinus namaycush* (Lake Trout)
51. *Salvelinus namaycush* (Lake Trout)
52. *Salvelinus namaycush* (Lake Trout)
53. *Salvelinus namaycush* (Lake Trout)
54. *Salvelinus namaycush* (Lake Trout)
55. *Salvelinus namaycush* (Lake Trout)
56. *Salvelinus namaycush* (Lake Trout)
57. *Salvelinus namaycush* (Lake Trout)
58. *Salvelinus namaycush* (Lake Trout)
59. *Salvelinus namaycush* (Lake Trout)
60. *Salvelinus namaycush* (Lake Trout)
61. *Salvelinus namaycush* (Lake Trout)
62. *Salvelinus namaycush* (Lake Trout)
63. *Salvelinus namaycush* (Lake Trout)
64. *Salvelinus namaycush* (Lake Trout)
65. *Salvelinus namaycush* (Lake Trout)
66. *Salvelinus namaycush* (Lake Trout)
67. *Salvelinus namaycush* (Lake Trout)
68. *Salvelinus namaycush* (Lake Trout)
69. *Salvelinus namaycush* (Lake Trout)
70. *Salvelinus namaycush* (Lake Trout)
71. *Salvelinus namaycush* (Lake Trout)
72. *Salvelinus namaycush* (Lake Trout)
73. *Salvelinus namaycush* (Lake Trout)
74. *Salvelinus namaycush* (Lake Trout)
75. *Salvelinus namaycush* (Lake Trout)
76. *Salvelinus namaycush* (Lake Trout)
77. *Salvelinus namaycush* (Lake Trout)
78. *Salvelinus namaycush* (Lake Trout)
79. *Salvelinus namaycush* (Lake Trout)
80. *Salvelinus namaycush* (Lake Trout)
81. *Salvelinus namaycush* (Lake Trout)
82. *Salvelinus namaycush* (Lake Trout)
83. *Salvelinus namaycush* (Lake Trout)
84. *Salvelinus namaycush* (Lake Trout)
85. *Salvelinus namaycush* (Lake Trout)
86. *Salvelinus namaycush* (Lake Trout)
87. *Salvelinus namaycush* (Lake Trout)
88. *Salvelinus namaycush* (Lake Trout)
89. *Salvelinus namaycush* (Lake Trout)
90. *Salvelinus namaycush* (Lake Trout)
91. *Salvelinus namaycush* (Lake Trout)
92. *Salvelinus namaycush* (Lake Trout)
93. *Salvelinus namaycush* (Lake Trout)
94. *Salvelinus namaycush* (Lake Trout)
95. *Salvelinus namaycush* (Lake Trout)
96. *Salvelinus namaycush* (Lake Trout)
97. *Salvelinus namaycush* (Lake Trout)
98. *Salvelinus namaycush* (Lake Trout)
99. *Salvelinus namaycush* (Lake Trout)
100. *Salvelinus namaycush* (Lake Trout)



- 125. *Ameiurus lacustris* Walbaum.**
Lake Catfish.
Lacustrine and fluviatile.
St. Lawrence river and tributaries, and Great Lakes region westward to the Prairie Provinces: Hudson Bay (Pennant, 1788, as the mathemeg; and Walbaum, 1792, as *Gadus lacustris*): in the United States, ranging from the Great Lakes possibly to the Mississippi valley, but the limits of its southern habitat uncertain.*
- 126. *Ameiurus natalis* Le Sueur.**
Yellow Catfish.
Lacustrine and fluviatile.
Great Lakes region: recorded from Sugarbush, Bevin, and Bark Lakes, Province of Quebec (D'Urban, 1859, as *Pimelodus canosus*): extends southward to the southern United States.
- 127. *Ameiurus vulgaris* Thompson.**
Long-jawed Catfish.
Lacustrine and fluviatile.
Lake Champlain and Provinces of Ontario and Manitoba: ranges in the United States from Vermont westward to Illinois and Minnesota: "most abundant from Lake Erie." (Nash).
- 128. *Ameiurus nebulosus* Le Sueur.** (Plate VIII, figures 68 and 69).
Common Catfish: Horned Pout.
Lacustrine and fluviatile.
Ranges in Canada from the Maritime Provinces to Manitoba, including the St. Lawrence River and Great Lakes region: recorded from the Saskatchewan River region (Richardson, 1823, as *Silurus felis*): in the United States extending from Maine westward to North Dakota, and southward to the southern States: has been introduced into rivers of California, and into lakes of southern Oregon.
- 129. *Ameiurus melas* Rafinesque.**
Black Bullhead.
Lacustrine and fluviatile.
Extends from upper St. Lawrence River and State of New York, westward to Nebraska (Gill, 1862, as *Amiurus obesus*) and Kansas (Gilbert, 1884, as *Amiurus cragini*): recorded from Medina River, Texas (Cope, 1880, as *Amiurus brachyacanthus*): presumably Ontario.†
- 130. *Noturus flavus* Rafinesque.**
Stone Catfish.
Lacustrine and fluviatile.
Ottawa River;‡ Lake Champlain: Great Lakes region, extending westward to Montana and Wyoming and southward to Texas.

*"It is not certain just what its range really is. It is probably chiefly or even entirely confined to the Great Lakes and northward, including possible the upper Mississippi." Jordan and Evermann.

†"I believe that many years ago I took it in the county of Lincoln, Ontario." Nash.

‡A very small specimen some 1½ inches long passed from the Ottawa River through the water taps of the Ottawa fish hatchery in February, 1909.

131. *Schilbeodes gyrinus* Mitchell.
Tadpole Stone Cat: Mad Tom.
Fluviatile.
Great Lakes region, extending from the Hudson River westward to the Mississippi valley;
and probably to be found in Ontario.
132. *Ictiobus cyprinella* Cuvier and Valenciennes.
Common Buffalo Fish.
Lacustrine and fluviatile.
Manitoba: Qu'Appelle valley, Saskatchewan, at the head of the chain of lakes; and Mississippi valley.
133. *Ictiobus bubalus* Rafinesque.
Small-mouth Buffalo Fish.
Fluviatile and lacustrine.
Manitoba, and Mississippi valley and basin.
134. *Carpiodes thompsoni* Agassiz.
Lake Carp Sucker.
Lacustrine and fluviatile.
Lake Champlain, upper St. Lawrence River, and Great Lakes region, including Lake of the Woods.
135. *Carpiodes velifer* Rafinesque.
Quillback.
Fluviatile.
Prairie Provinces, Mississippi valley, and upper Missouri River, extending southward to the Rio Grande.
136. *Pantosteus jordani* Evermann.
Mountain Sucker.
Frequents clear streams.
Upper Missouri valley, streams of the Black Hills, South Dakota, localities in Montana and Idaho, and Columbia River basin: may be found in southern Alberta or perhaps in British Columbia.
137. *Catostomus griseus* Girard.
Gray Sucker.
Fluviatile.
Alberta and Saskatchewan: upper Missouri basin and Platte and Yellowstone Rivers.
138. *Catostomus catostomus* Forster.
Northern Sucker.
Lacustrine and fluviatile.
Nearly cosmopolitan in the Dominion: ranging from Labrador and New Brunswick to British Columbia, and from the eastern to the western United States, extending southward at least to Latitude 40° N., but has been obtained in West Virginia; and occurs also in Alaska: recorded from Hudson Bay (Forster, 1773, and Pennant, 1788, as *Cyprinus catostomus*), and from "stream near Great Bear Lake and stream near Fort Good Hope" (Preble, 1903-4.)

139. **Catostomus macrocheilus** Girard.
Columbia River Sucker.
Lacustrine and fluviatile.
Kootenay Lakes; Shushway Lake, Sicamous; and Thompson River, Kamloops; British Columbia: Columbia River basin, and rivers and lakes of the States of Oregon, Washington, Idaho, and Montana.
140. **Catostomus commersonii** Lacépède. (Plate VIII, figures 70 and 71).
Common White Sucker.
Lacustrine and fluviatile.
Very cosmopolitan in British North America, from the Maritime Provinces, Gaspé District, and Labrador, to Alberta: in the United States extending from the eastern States westward to Montana and Colorado and southward to Georgia: recorded from Hudson Bay (Pennant, 1788, as the Namapeth).
141. **Catostomus nigricans** Le Sueur.
Stone Roller: Black Sucker.
Lacustrine and fluviatile.
Great Lakes region, including Lake of the Woods: in the United States extending from the State of New York to Minnesota and Kansas westward, and to the Carolinas and Arkansas southward.
142. **Erimyzon sucetta oblongus** Mitchill.
Chub Sucker.
Lacustrine and fluviatile.
Mentioned in "List of the Fishes of Nova Scotia" (Jones, 1879); tributaries of lower St. John River, New Brunswick* (Cox, 1895, after Adams); St. Lawrence River and tributaries (Fortin, 1865, as *Catostomus tuberculatus*); and Great Lakes region: in the United States extending from Maine westward to the Dakotas, and southward to Virginia and Oklahoma: "gradually passing southward into the typical *sucetta*" (Jordan and Evermann.)
143. **Minytrema melanops** Rafinesque.
Spotted Sucker.
Lacustrine and fluviatile.
Great Lakes region: southeastward to North Carolina and southwestward to Texas: given here owing to its occurrence in the Great Lakes.
144. **Moxostoma anisurum** Rafinesque.
White-nosed Red Horse.
Lacustrine and fluviatile.
St. Lawrence River; Great Lakes region, including Lake of the Woods; and Manitoba: Youghiogheny River, Pennsylvania (Cope 1870, as *Ptychostomus velatus*): Ohio River (Rafinesque, 1820, as *Catostomus anisurus*).

*Dr. Cox considers this species to be extinct in New Brunswick, not having seen it for some thirty years. He regards the green pike (*Lucius reticulatus*) as being the cause of its disappearance.

145. *Moxostoma aureolum* Le Sueur. (Plate VIII, figures 72 and 73).
Common Red Horse.
Lacustrine and fluviatile.
St. Lawrence River and Great Lakes region, including Lake of the Woods; and Manitoba: abundant west of the Alleghany mountains to Nebraska: extending southward to Arkansas and Georgia.
146. *Moxostoma macrolepidotum* Le Sueur.
Large-scaled Red Horse.
Lacustrine and fluviatile.
Pine Island Lake and Albany River (Günther, 1868, as *Catostomus macrolepidotus*): Chesapeake and Delaware Bays southward to North Carolina.
147. *Moxostoma lesueuri* Richardson.
Northern Red Horse.
Lacustrine and fluviatile.
Manitoba: Saskatchewan River and northward of Great Slave Lake, Pine Island Lake, and Albany River district (Richardson, 1823 and 1836, under *Catostomus lesueuri* and other synonyms).
148. *Moxostoma breviceps* Cope.
Short-headed Mullet.
Lacustrine and fluviatile.
Great Lakes region* and Ohio valley: Youghiogeny River, Pennsylvania (Cope, 1870, as *Ptychostomus breviceps*).
149. *Placopharynx duquesnii* Le Sueur.
Fluviatile.
Detroit River system (at least on the Michigan side): extending southward to Tennessee, Arkansas, and Georgia: "it is probably most abundant in the French Broad River and in the Ozark region" (Jordan and Evermann, 1902).
150. *Campostoma anomalum* Rafinesque.
Stone Roller: Stone Lugger.
Fluviatile, ascending small brooks to spawn.
Detroit River, doubtless Lake Erie, and likely Niagara River:† State of New York, extending westward to Wyoming and southward to Texas.
151. *Acrocheilus alutaceus* Agassiz and Pickering.
Chisel-mouth.
Fluviatile.
Possibly British Columbia: Lower Columbia River and tributaries.

*"This species seems to be confined to Lake Erie, so far as our Province [Ontario] is concerned." Nash.

†"Should and probably does occur in streams flowing into Niagara River and into Lake Erie." Nash.

- 152. *Chrosomus erythrogaster*** Rafinesque.
 Red-bellied Dace.
 Fluvatile.
 Provinces of Ontario, Quebec, and New Brunswick: in the United States extending from Maine westward to Iowa and southward to northern Alabama.
- 153. *Hybognathus nuchalis*** Agassiz.
 Silver Minnow.
 Fluvatile.
 Lake Ontario region: tributary streams of the United States from the Delaware and Neuse rivers westward to the upper Missouri and southward to Texas and Georgia: embraced under a number of sub-species and varieties.
- 154. *Hybognathus argyritus*** Girard.
 White Minnow.
 Fluvatile.
 Manitoba and upper Missouri region.
- 155. *Pimephales promelas*** Rafinesque.
 Blackhead Minnow: Bull Minnow.
 Lacustrine and fluvatile.
 Extends from Lake Champlain to the Prairie Provinces, ranging southward to Kentucky and the Rio Grande.
- 156. *Pimephales notatus*** Rafinesque.
 Blunt-nosed Minnow.
 Fluvatile.
 Province of Quebec to Delaware: St. Lawrence River and presumably Ontario: "generally very abundant in small streams west of the Alleghanies" (Jordan and Evermann); extending westward to the Dakotas and southward to Alabama and Arkansas: may be found in Manitoba.
- 157. *Mylocheilus caurinus*** Richardson.
 Columbia River Chub.
 Fluvatile, and marine in that it enters the sea.
 British Columbia, including Vancouver Island: extends south to Oregon.
- 158. *Semotilus corporalis*** Mitchill. (Plate VIII, figures 74 and 75).
 Silver Chub: Fall-fish.
 Lacustrine and fluvatile.
 Widely distributed in the rivers and streams of the Maritime Provinces: St. Lawrence River system and streams and ponds of Ontario: abundant also in northern United States east of the Alleghanies.
- 159. *Semotilus atromaculatus*** Mitchill.
 Creek Chub: Horned Dace.
 Fluvatile.
 Maritime Provinces and Provinces of Ontario and Quebec: St. Lawrence River and its tributaries: in the United States extending from Maine westward to Wyoming and southward to Alabama and Georgia.

160. *Ptychocheilus oregonensis* Richardson.
Squawfish.
Fluviatile.
British Columbia, including Vancouver Island: States of Washington and Oregon westward to Montana.
161. *Leuciscus balteatus* Richardson.
Columbia River Minnow.
Fluviatile.
British Columbia: Columbia river and streams of Puget Sound: presumably westward to Montana (Evermann, 1891, as *L. gilli*).*
162. *Leuciscus elongatus* Kirtland.
Red-sided Shiner.
Lacustrine and fluviatile.
"Very abundant in most streams in southern and central Ontario" (Nash, 1908): in the United States "Great Lakes and upper Mississippi Valley, chiefly from Pennsylvania to Minnesota" (Jordan and Evermann).
163. *Leuciscus nachtriebi* Cox
Nachtrieb Dace.
Lacustrine.
Certain lakes of northern Minnesota: given here as likely to occur in Lake of the Woods region.
164. *Leuciscus neogæus* Cope.
Lacustrine and fluviatile.
Provinces of New Brunswick and Quebec, and presumably Ontario: also locally known from Michigan to South Dakota.
165. *Opsopœodus emiliae* Hay.
Fluviatile.
Streams tributary to Lake Erie: also distributed from southern Indiana southward to Georgia: given here owing to its occurrence in Lake Erie waters.
166. *Abramis crysoleucas* Mitchill. (Plate VIII, Figures 78 and 79).
Bream: Roach: Golden Shiner.
Lacustrine and fluviatile—abounding in bayous and weedy ponds.
Maritime Provinces, including Prince Edward Island: in the United States from the eastern States westward to Dakota and southward to Texas.
167. *Cliola vigilax* Baird and Girard.
Bullhead Minnow.
Fluviatile.
Detroit, Michigan (Cope, 1866, as *Hybopsis tuditanus*), and therefore given here owing to its occurrence so close to our border: extends from Ohio westward to Iowa and southward to Texas and Georgia.

*¹Apparently not distinct from *L. balteatus*." Jordan and Evermann.

168. **Notropis jordani** Eigenmann and Eigenmann.
Jordan's Shiner.
Fluviatile.
South Saskatchewan River, Medicine Hat, Alberta.
169. **Notropis cayuga** Meek.
Cayuga Shiner.
Lacustrine and fluviatile.
Qu'Appelle Valley, Saskatchewan: extends from northern New York State westward to South Dakota and Nebraska and southward to Arkansas: may be found in Ontario and Manitoba.
170. **Notropis fretensis*** Cope.
Fluviatile.
Detroit River, Michigan (Cope, 1866, as *Hybopsis fretensis*) therefore given here as being so near our border.
171. **Notropis muskoka** Meek.
Muskoka Shiner.
Lacustrine and fluviatile.
Gull Lake and adjacent waters, Muskoka, Ontario.
172. **Notropis heterodon** Cope.
Blackchin Minnow.
Fluviatile.
"Ranges from the St. Lawrence River westward" (Nash, 1908): in the United States extending, probably under a number of varieties,† from the State of New York to Michigan and Kansas.
173. **Notropis blennius** Girard.
Straw-coloured Minnow.
Lacustrine and fluviatile.
Upper St. Lawrence River and Great Lakes region, including Lake of the Woods, to Manitoba: in the United States, under several varieties, extends from Ohio to Dakota and southward to Texas.
174. **Notropis volucellus** Cope.
Fluviatile.
Detroit River, Michigan (Cope, 1864, as *Hybognathus volucellus*) therefore given here as being so near our border: known from northern Indiana, Michigan, and Wisconsin.
175. **Notropis scylla** Cope.
Fluviatile: "sandy streams of the plains."
"Illinois River to western Kansas and Montana" (Jordan and Evermann): given here as likely to occur in the Prairie Provinces.

*"A doubtful species, perhaps identical with *Notropis cayuga*." Jordan and Evermann.

†"*Notropis heterodon* is apparently subject to large variations." Jordan and Evermann.

176. *Notropis hudsonius* De Witt Clinton.
Spawn-eater: Spot-tail Minnow.
Lacustrine and fluviatile.
Great Lakes: State of New York westward to the Dakotas, and southward to South Carolina.
177. *Notropis hudsonius selene* Jordan.
Spawn-eater.
Lacustrine and fluviatile.
Lake Superior; Lake of the Woods; Prairie Provinces; and Hayes River, 15 miles above York Factory, Hudson Bay region (Preble, 1900).
178. *Notropis whipplii* Girard.
Silverfin: Satin-fin Minnow.
Lacustrine and fluviatile.
St. Lawrence River and Great Lakes region: in the United States from central New York State westward to Minnesota and southward to Alabama and Arkansas.
179. *Notropis cornutus* Mitchill.
Dace: Redfin.
Fluviatile.
Widely distributed in Canada from New Brunswick and Province of Quebec to Manitoba: will probably be found in the Prairie Provinces: in the United States "entire region east of the Rocky Mountains excepting the south Atlantic States and Texas: its varieties are great, some of them appearing like distinct species" (Jordan and Evermann).
180. *Notropis jejunus* Forbes.
Poor Minnow.
Lacustrine and fluviatile.
Lake of the Woods and Prairie Provinces: extending in the United States to Kansas and Pennsylvania.
181. *Notropis scopifer* Eigenmann and Eigenmann.
Fluviatile.
The three Prairie Provinces, viz:—Manitoba, Saskatchewan, and Alberta.
182. *Notropis atherinoides* Rafinesque.
Great Minnow.
Lacustrine and fluviatile.
St. Lawrence River and Great Lakes region; Lake of the Woods; Prairie Provinces; and Ohio and Mississippi Valleys.
183. *Notropis rubrifrons* Cope.
Rosy-front Minnow.
Lacustrine and fluviatile.
Recorded from the St. Lawrence River and Lake of the Woods: in the United States extending from the State of New York westward to southern Michigan and southward to Kansas.

PLATE VIII.

- 60-61. *Hyodon tergistus* (Mooneye)
62-63. *Clupea harengus* (Common Herring)
64-65. *Clupea pallasii* (California Herring)
66-67. *Brevoortia tyrannus* (Menhaden)
68-69. *Ameiurus nebulosus* (Common Catfish)
70-71. *Catostomus commersonii* (Common White Sucker)
72-73. *Moxostoma aureolum* (Common Red Horse)
74-75. *Semotilus corporalis* (Silver Chub or Fallfish)
76-77. *Cyprinus carpio* (German Carp)
78-79. *Abramis crysoleucas* (Bream or Roach)
80-81. *Anguilla chrysypa* (American Eel)
82. *Leptocephalus conger* (Conger Eel)
83-84. *Lucius reticulatus* (Green Pike)

PLATE VIII.

- 60-61. *Hyodon teretica* (Mooney)
 61-62. *Hyodon pallasi* (California Herpetos)
 62-63. *Hyodon pallasi* (California Herpetos)
 63-64. *Hyodon pallasi* (California Herpetos)
 64-65. *Hyodon pallasi* (California Herpetos)
 65-66. *Hyodon pallasi* (California Herpetos)
 66-67. *Hyodon pallasi* (California Herpetos)
 67-68. *Hyodon pallasi* (California Herpetos)
 68-69. *Hyodon pallasi* (California Herpetos)
 69-70. *Hyodon pallasi* (California Herpetos)
 70-71. *Hyodon pallasi* (California Herpetos)
 71-72. *Hyodon pallasi* (California Herpetos)
 72-73. *Hyodon pallasi* (California Herpetos)
 73-74. *Hyodon pallasi* (California Herpetos)
 74-75. *Hyodon pallasi* (California Herpetos)
 75-76. *Hyodon pallasi* (California Herpetos)
 76-77. *Hyodon pallasi* (California Herpetos)
 77-78. *Hyodon pallasi* (California Herpetos)
 78-79. *Hyodon pallasi* (California Herpetos)
 79-80. *Hyodon pallasi* (California Herpetos)
 80-81. *Hyodon pallasi* (California Herpetos)
 81-82. *Hyodon pallasi* (California Herpetos)
 82-83. *Hyodon pallasi* (California Herpetos)
 83-84. *Hyodon pallasi* (California Herpetos)
 84-85. *Hyodon pallasi* (California Herpetos)
 85-86. *Hyodon pallasi* (California Herpetos)
 86-87. *Hyodon pallasi* (California Herpetos)
 87-88. *Hyodon pallasi* (California Herpetos)
 88-89. *Hyodon pallasi* (California Herpetos)
 89-90. *Hyodon pallasi* (California Herpetos)
 90-91. *Hyodon pallasi* (California Herpetos)
 91-92. *Hyodon pallasi* (California Herpetos)
 92-93. *Hyodon pallasi* (California Herpetos)
 93-94. *Hyodon pallasi* (California Herpetos)
 94-95. *Hyodon pallasi* (California Herpetos)
 95-96. *Hyodon pallasi* (California Herpetos)
 96-97. *Hyodon pallasi* (California Herpetos)
 97-98. *Hyodon pallasi* (California Herpetos)
 98-99. *Hyodon pallasi* (California Herpetos)
 99-100. *Hyodon pallasi* (California Herpetos)



- 184. *Notropis umbratilis* Girard.**
 Redfin Minnow.
 Fluvialtile and lacustrine.
 Western New York State westward to Minnesota and southward to North Carolina and Alabama; given here as likely to occur in western Ontario; occurs under numerous sub-species and varieties in many of the States of North America.
- 185. *Rhinichthys cataractæ* Cuvier and Valenciennes.**
 Long-nosed Dace.
 Fluvialtile: "frequenter clear and boisterous streams and rock pools."
 Extending in Canada from New Brunswick and Province of Quebec to Lake Superior: "not uncommon at Sault Ste. Marie" (Nash, 1908); in the United States from the New England States westward to Wisconsin and southward to Virginia.
- 186. *Rhinichthys cataractæ dulcis* Girard.**
 Long-nosed Dace.
 Fluvialtile.
 Provinces of Saskatchewan and Alberta: Columbia River basin: "Rocky Mountain region on both sides of the divide" (Jordan and Evermann); headwaters of numerous rivers in western States, including tributaries of Great Salt Lake.
- 187. *Rhinichthys atronasmus* Mitchill.**
 Black-nosed Dace.
 Fluvialtile: "clear brooks and mountain streams."
 Extending from the Maritime Provinces and Province of Quebec to the Great Lakes region: in the United States extending from the New England States westward to Minnesota and southward to Virginia and northern Alabama.
- 188. *Agosia nubila* Girard.**
 Dusky Minnow.
 Fluvialtile.
 "Basin of Columbia River from western Idaho below the Shoshone Falls of Snake River to the coast, and in coastwise streams from Washington southward into Oregon" (Jordan and Evermann): given here as likely to occur in British Columbia.
- 189. *Agosia umatilla* Gilbert and Evermann.**
 Idaho Minnow.
 Fluvialtile.
 "Known from the Columbia River at Umatilla and Payette River at Payette, Idaho" (Jordan and Evermann): given here as likely to occur in British Columbia.
- 190. *Agosia falcata* Eigenmann and Eigenmann.**
 Falcate Minnow.
 Lacustrine and fluvialtile.
 Recorded from Shushwap Lake, Sicamous, British Columbia: Columbia River basin and Idaho.

191. **Hybopsis dissimilis** Kirtland.
Spotted Shiner.
Lacustrine and fluviatile.
Great Lakes region (at least Lake Erie): extending westward to Iowa and southward to the head waters of the Tennessee, and Arkansas.
192. **Hybopsis amblops** Rafinesque.
Silver Chub.
Fluviatile.
State of New York westward to Iowa and southward to Alabama: probably occurs in Canada.
193. **Hybopsis storerianus** Kirtland.
Lake Minnow.
Lacustrine and fluviatile.
Lakes Ontario and Erie, and Manitoba: in the United States extends westward to eastern Wyoming and southward to Arkansas.
194. **Couesius plumbeus** Agassiz.
Lake Chub.
Lacustrine and fluviatile.
Ranges from Maritime Provinces and Province of Quebec to Lake Superior: recorded from Grant or St. Croix Lake, Mackenzie River region (Preble, 1903-4).
195. **Couesius dissimilis*** Girard.
Fluviatile.
Provinces of Saskatchewan and Alberta, and Montana.
196. **Couesius greeni** Jordan.
Green's Chub.
Lacustrine and fluviatile.
British Columbia, and Lake Pend d'Oreille, Idaho.
197. **Platygobio gracilis** Richardson.
Flat-headed Chub.
Fluviatile.
Prairie Provinces: Athabasca and Mackenzie Rivers (Preble, 1903-4): Missouri and Yellowstone Rivers to the Rocky Mountains: southward to Kansas.
198. **Exoglossum maxillingua** Le Sueur.
Cutlip Minnow.
Lacustrine and fluviatile.
Lake Champlain, St. Lawrence River, Lake Ontario, and State of New York, southward to Virginia.

*"Very close to *C. plumbeus*, the only important difference being in the form of the dorsal fin: probably a variety of *C. plumbeus*." Jordan and Evermann. According to Dr. Cox many authorities regard *C. dissimilis* and *C. greeni* as not specifically different from *C. plumbeus*.

199. *Cyprinus carpio* Linnæus. (Plate VIII, figures 76 and 77).
German Carp.
Lacustrine and fluviatile.
Native to Asia, but introduced into Europe long ago; and of late years into North America: has made its way from the United States into the Bay of Quinte and other Canadian waters, being common throughout the Detroit River.
200. *Carassius auratus* Linnæus.
Goldfish.
Lacustrine and fluviatile.
Native to Japan and China, but introduced into waters of the United States, and well nigh cosmopolitan as an introduced fresh water pond and aquarium fish, wherein it breeds freely—sometimes even in the latter.
201. *Anguilla chrysypa* Rafinesque. (Plate VIII, figures 80 and 81).
American Eel.
Lacustrine, fluviatile, and catadromous: alleged to move sometimes through damp grass over land to adjacent waters.
Widely distributed in British North America from Newfoundland and Labrador westward; recorded from a stream in Anticosti Island (Schmitt, 1904): "does not occur above the Grand Falls, St. John River" [New Brunswick] (Cox); nor according to Nash above the Falls of Niagara in Ontario, the Falls "forming an insurmountable obstacle to further progress": in the United States extending from Maine westward to the Rocky Mountains, and southward into Mexico and Central America: occurs also in the West Indies: "caught in considerable numbers in Porto Rico in the small bamboo traps or 'nasas' set in the small rivers" (Evermann and Marsh, 1899): recorded from streams and lakes of Greenland (Fabricius, 1780, as *Muraena anguilla*).
202. *Simenchelys parasiticus* Gill.
Snubnosed Eel.
Bathybial: Parasitic: burrowing into the flesh of the halibut and other fishes.
Recorded from the Banks off Newfoundland and from Sable Island Banks:* recorded also from the Azores (Collett, 1889, as *Conchognathus grimaldii*).
203. *Leptocephalus conger* Linnæus. (Plate VIII, figure 82).
Conger Eel.
Marine.
Atlantic Ocean: on the American side extending from Cape Cod to Brazil: recorded by Dr. Stahl from Porto Rico (Evermann and Marsh, 1899): coasts of Europe, Asia, and Africa: has been recorded from New Brunswick—"a specimen taken in Pokemouche Gully in October, 1849" (Cox).

*A specimen collected near Sable Island Banks is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. LVI.

204. *Avocettina infans* Günther.

Snipe Eel.

Bathybial.

Recorded (but with a query* as to its being this species) from Prince of Wales Island, Alaska, close to the British Columbian border (Bean, 1890, as *Labrichthys gilli*) and therefore given here: otherwise known from West Indies, mid-Atlantic, off Pernambuco; at a depth of 2,500 fathoms.

205. *Nemichthys scolopaceus* Richardson.

Snipe Eel.

Bathybial.

Atlantic Ocean; and Pacific Ocean, at least if the following (*note to which see*) is the same species: "fishing banks off the coast" of Nova Scotia (Jones, 1879): Grand Banks, Newfoundland: off New England coast: Madeira Islands: first recorded from south Atlantic (Richardson, 1848).

206. *Nemichthys avocetta*† Jordan and Gilbert.

Snipe Eel.

Bathybial.

Known from vicinity of Victoria, Vancouver Island, and from Puget Sound, State of Washington.

207. *Synphobranchus pinnatus* Gronow.

Deep-sea Eel.

Bathybial.

Northern Atlantic and western Pacific: "fishing banks off the coast of Nova Scotia" (Jones, 1879): Banks of Newfoundland: Canary and Madeira Islands: *S. affinis* Günther, of Japan may be referable to this species.

208. *Gastrostomus bairdii* Gill and Ryder.

Gulper.

Bathybial: has been obtained in from 389 to 1,467 fathoms.

Known from Banks of Newfoundland and Davis Straits.

209. *Lucius reticulatus* Le Sueur. (Plate VIII, figures 83, and 84).

Green Pike: Common Eastern Pickerel.

Lacustrine and fluviatile.

Ranges from New Brunswick and the St. Lawrence River westward to Ontario: extensively distributed east of the Alleghany Mountains to southern United States.

*In their synonymy of *A. infans* Drs. Jordan and Evermann query *Labrichthys gilli*, but add in a foot-note: "probably identical with *Avocettina infans*."

†Perhaps ought not to be regarded distinct as a species from the preceding: "differing in some slight respects from all Atlantic specimens examined, but very likely not a distinct species." Jordan and Evermann.

210. **Lucius lucius** Linnæus. (Plate IX, figures 85 and 86).
Common Pike.
Lacustrine and fluviatile.
Nearly cosmopolitan in the fresh waters of the northern parts of North America, Europe, and Asia, being the most widely distributed of fresh water fishes: widely distributed in British North America westward to Alberta: extending far north, the limits of its northern distribution not yet well determined, but it occurs in Alaska: extending in the United States from the State of New York westward to the Mississippi valley, perhaps further west, and southward to the Ohio River.
211. **Lucius masquinongy** Mitchill.
Maskinonge.
Lacustrine and fluviatile.
St. Lawrence River and Great Lakes region, embracing the Provinces of Quebec and Ontario: common among the Thousand Islands: said also to occur in Manitoba: ranging from Lake Champlain to the upper Mississippi valley.
212. **Umbra limi** Kirtland.
Mud Minnow.
Lacustrine and fluviatile: sluggish streams and ditches, even living in mud.
Ranges from the Province of Quebec westward through the Great Lakes region to Minnesota and southward to the Ohio River.
213. **Fundulus heteroclitus** Linnæus.
Common Killifish.
Usually in brackish water: burying in the mud of lagoons.
Maritime Provinces, Gaspé Bay, Anticosti Island, and Labrador: in the United States extending from the coast of Maine southward to the Rio Grande.
214. **Fundulus heteroclitus macrolepidotus** Walbaum.
Common Cobbler.
In brackish water.
Recorded from mouth of Little River, St. John, New Brunswick (Cox, 1895, as *F. nigrofasciatus*): ranges in the United States from Maine southward to Virginia.
215. **Fundulus heteroclitus badius** Garman.
Garman's Cobbler.
In brackish water.
Island of Grand Manan, New Brunswick.
216. **Fundulus diaphanus** Le Sueur.
Fresh-water Killie: Grayback.
Lacustrine, fluviatile, and marine: frequenting river mouths and ascending streams.
Maritime Provinces, including Prince Edward Island, and Provinces of Quebec and Ontario: in the United States from Maine to North Carolina.
217. **Fundulus notatus** Rafinesque.
Top Minnow.
Abounds in ponds and canals.
Detroit River, Michigan, extending southward to southern States: given here as likely to be found on the Ontario side of the Detroit River.

218. **Macrostoma quercinum** Goode and Bean.
Bathybial.
Grand Banks, Newfoundland, in from 700 to 800 fathoms (Goode and Bean, 1895, as *Notoscopelus quercinum*): also the Mediterranean.
219. **Macrostoma margaritiferum** Goode and Bean.
Marine.
Based upon two specimens from off Banquereau (Goode and Bean, 1895, as *Notoscopelus margaritifer*).
220. **Macrostoma castaneum** Goode and Bean.
Marine.
Based upon two specimens from Grand Banks of Newfoundland (Goode and Bean, 1895, as *Notoscopelus castaneus*).
221. **Ceratoscopelus madeirensis** Lowe.
Lantern Fish.
Bathybial.
Grand Banks of Newfoundland, in some 1,500 fathoms, extending eastward to the Mediterranean.
222. **Lampanyctus g  ntheri** Goode and Bean.
Marine.
Grand Banks of Newfoundland.
223. **Lampanyctus gemmifer** Goode and Bean.
Bathybial.
Based upon a specimen in 538 fathoms from Grand Banks of Newfoundland (Goode and Bean, 1895).
224. **Nannobrachium nannochir** Gilbert.
Bathybial.
British Columbia: ranges from Santa Barbara Islands, California, to Alaska.
225. **Diaphus theta** Eigenmann and Eigenmann.
Head-light Fish.
Bathybial.
Ranges at least from British Columbia to Point Loma near San Diego, California.
226. **Rhinoscopelus coccoi** Cocco.
Marine.
Coast of Newfoundland: abundant in the Gulf Stream: extends eastward to the Mediterranean and to the coast of Africa.
227. **Myctophum punctatum** Rafinesque.
Lantern Fish.
Marine.
Off Banks of Newfoundland: extending from Gulf Stream eastward to the Mediterranean.

228. *Benthoosema arcticum* Lütken.
Marine.
Davis Straits, Greenland (Lütken, 1892, as *Scopelus arcticus*): given here owing to its occurrence in Davis Straits.
229. *Tarletonbeania crenularis* Jordan and Gilbert.
Marine.
Off Straits of Fuca, State of Washington: Santa Barbara Channel, California: "two small specimens known, one from the stomach of an albacore, the other blown on a vessel during a storm" (Jordan and Evermann): given here owing to its occurrence off Straits of Fuca.
230. *Arctozenus borealis* Reinhardt.
Bathybial.
"Greenland; occasionally southward to Cape Ann" (Jordan and Evermann), and therefore, being a northern fish, but extending south beyond our coasts, mentioned here.
231. *Plagyodus ferox* Lowe.
Lancet Fish.
Bathybial.
Off Nova Scotia: Grand Banks, Newfoundland: coast of Massachusetts: Madeira, and Canary Islands (Cuvier and Valenciennes, 1849, as *Alepisaurus azureus*).
232. *Plagyodus æsculapius** Bean.
Wolfish: Handsawfish.
Marine.
British Columbia: ranges from California northward to Alaska.
233. *Plagyodus borealis* Gill.
Handsawfish.
Marine.
British Columbia: ranges from the Aleutian Islands to Puget Sound.
234. *Percopsis guttatus* Agassiz.
Sand Roller: Trout Perch.
Lacustrine and fluviatile.
Ranging more or less locally, sometimes as in the Great Lakes region abundantly, from Lake Champlain westward to Alberta, northward to the Hudson Bay region, and southward to Kansas and the Ohio and Delaware Rivers: ascends the river Moira, passing the town of Tweed, Ontario, at the spawning season in great numbers.
235. *Columbia transmontana* Eigenmann and Eigenmann.
Oregon Trout Perch.
Fluviatile: "sandy or weedy lagoons."
Known from the lower basin of the Columbia river: given here as likely to be found in British Columbia.

*"It does not seem to differ at all from *Plagyodus ferox*." Jordan.

236. *Notacanthus phasganorus* Goode.
Spiny Eel.
Marine.
Grand Banks, Newfoundland: known from one specimen which was taken from the stomach of a sleeper shark.
237. *Macdonaldia rostrata* Collett.
Spiny Eel.
Bathybial.
Off Newfoundland: stations 2216 and 2553 of the United States s.s. *Albatross*: has also been obtained west of Iceland.
238. *Lampris luna* Gmelin.
Opah: Kingfish.
Pelagic.
Recorded from Sable Island,* Nova Scotia: "off Madeira, occasionally taken off Newfoundland, Maine, and Cuba, also at Monterey and other places in California" (Jordan and Evermann): off coasts of Europe, and in the Mediterranean: British Islands, including coasts of Ireland and the Orkney Islands (Yarrell, 1859).
239. *Eucalia inconstans* Kirtland.
Brook Stickleback.
Fluviatile: in small brooks especially.
Ranges from Maritime Provinces to Alberta: in the United States from State of New York westward to Minnesota: doubtfully recorded from Sukkertoppen, Greenland (Cope, 1865).
240. *Eucalia inconstans pygmæa* Agassiz.
Dwarf Stickleback.
Lacustrine.
Lake Superior (Agassiz, 1850, as *Gasterosteus pygmaeus*)
241. *Pygosteus pungitius* Linnaeus.
Nine-spined Stickleback.
Lacustrine, fluviatile, and in brackish water.
Very widely distributed in Canada from the Atlantic probably to the Pacific, and to the Arctic Sea: Newfoundland and Labrador: in the United States south to Long Island, and in Alaska: northern parts of Europe.
242. *Pygosteus pungitius brachypoda* Bean.
Arctic Stickleback.
Lacustrine and fluviatile.
Arctic regions: "mountain streams and lakes about Baffin's Bay" (Jordan and Evermann).

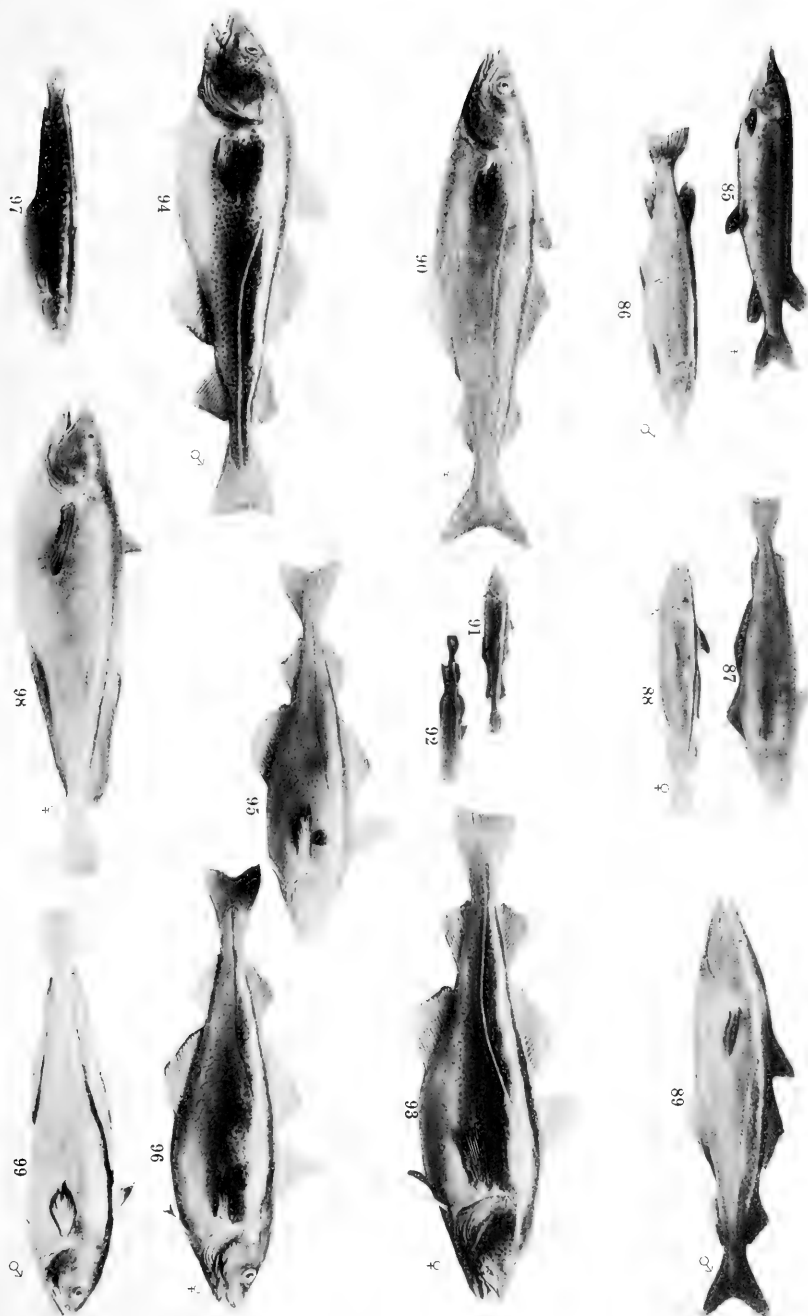
*"We have before us a drawing of a specimen of *Lampris luna* made at Sable Island by James Farquhar in 1856, and sent with an accompanying letter to Dr. J. Bernard Gilpin, of Halifax." Jordan and Evermann. "A specimen was taken at Sable Island some years ago, a rough sketch of which, with the colours well depicted, was made by one of the men belonging to the establishment there, and given to Dr. Bernard Gilpin, in whose portfolio I saw it and carefully examined it. Although the sketch was rude in the extreme, the peculiar form and brilliant colours left no doubt as to the fish. The man had never seen one before." Jones.

PLATE IX.

- 85-86. *Lucius lucius* (Common Pike)
87-88. *Merluccius bilinearis* (Silver Hake or Whiting)
89-90. *Pollachius virens* (Pollack)
91-92. *Microgadus tomcod* (Tomcod or Frostfish)
93-94. *Gadus callarias* (Common Codfish)
95-96. *Melanogrammus æglefinus* (Haddock)
97. *Lota maculosa* (Fresh-water Ling or Burbot)
98-99. *Urophycis tenuis* (Codling or White Hake)

PLATE IX.

- 85-86. *Lucina lucina* (Common Bay).
 87-88. *Meuschenia bilineata* (Silver Hake or Whiting).
 89-90. *Pollicinia virens* (Pollock).
 91-92. *Microgaster tomoei* (Tomcod or Erosfish).
 93-94. *Gadus callus* (Common Codfish).
 95-96. *Melanostomus melanops* (Haddock).
 97. *Pola maculosa* (Fresh-water Ling or Hap).
 98-99. *Crotophaga tenuis* (Coddling or White Hake).



- 243. *Gastrosteus aculeatus** Linnæus.**
Common Stickleback.
Fluviatile, in brackish water, and marine.
Maritime Provinces; and Gaspé district, Province of Quebec: also found in Ontario: Hudson Bay, Labrador, and Greenland: extends southward in the United States to New Jersey: coasts and streams of northern Europe.
- 244. *Gastrosteus atkinsii* Bean.**
Eastern Stickleback.
Lacustrine and fluviatile.
Province of Quebec and State of Maine.
- 245. *Gastrosteus cuvieri* Girard.**
Partly Armoured Stickleback.
Lacustrine, fluviatile, and in brackish water.
Labrador, Newfoundland, and Anticosti Island (Schmitt, 1904, as *Gasterosteus bispinosus*): extending southward to the coast of Massachusetts.
- 246. *Gastrosteus cataphractus* Pallas.**
Alaska Stickleback.
Marine: "rarely or never entering fresh water."
British Columbia: ranges from California to Alaska, hence to Siberia and Japan.
- 247. *Gastrosteus williamsoni microcephalus* Girard.**
California Stickleback.
Coastwise streams and brackish water.
British Columbia: ranges from Lower California, Mexico, to Alaska.
- 248. *Apeltes quadracus* Mitchill.**
Four-spined Stickleback.
Marine.
Maritime Provinces: ranges in the United States from Maine to New Jersey.
- 249. *Aulorhynchus flavidus* Gill.**
Yellow Stickleback.
Marine.
British Columbia: ranges from coast of California to Alaska.
- 250. *Fistularia tabacaria* Linnæus.**
Trumpet Fish.
Marine.
"Occasional specimens taken in shore waters [of Nova Scotia] during the summer months" (Jones, 1879): ordinary range, "West Indies and neighbouring seas, generally common; occasional northward to Carolina and Florida, or even to Long Island" (Jordan and Evermann): has been recorded also from coast of Massachusetts.

**G. aculeatus* and *G. bispinosus* are treated here as one and the same species, the European name being adopted for the two.

251. *Fistularia petimba* Lacépède.
Trumpet Fish.
Marine.
"Western Pacific, and other warm seas, also recorded from the Bermudas and from Cuba"
(Jordan and Evermann): "occasionally taken in shore waters" of Nova Scotia—
"a fine specimen taken at Portugal Cove, Halifax Harbour" and
"a small specimen is in the Halifax Museum" (Jones, 1879, as *F. serrata*).
252. *Siphostoma griseolineatum* Ayres.
Pipefish.
Marine.
British Columbia and Puget Sound, extending southward to California.
253. *Siphostoma fuscum* Storer.
Common Pipefish.
Marine.
Atlantic coast of the United States from Cape Ann southward to Virginia: "two specimens
. taken, 16 May, in Mill cove, Dartmouth,"* and a specimen obtained
in North West Arm, Halifax County, Nova Scotia, 11th May, 1909 (Piers);† and also
recorded as "common in shore waters" of Nova Scotia (Jones, 1879, as *Syngnathus*
peckianus).
254. *Hippocampus hudsonius*‡ De Kay.
Common American Sea-horse.
Marine: attaching itself by coiling its caudal region around sea-weeds or other objects.
Recorded from coast of Nova Scotia (Cox—verbally), and from Atlantic coast of Canada
(Whiteaves, 1886, as *H. heptagonus*): "Atlantic coast from Cape Cod southward to
Charleston" (Jordan and Evermann).
255. *Scombrosox saurus* Walbaum.
Saury: Billfish.
Pelagic: capable when pursued of springing out of the water, and for an interval of skipping
along the surface.
Maritime Provinces: both sides of the north Atlantic, and the open sea.
256. *Exocoetus volitans* Linnaeus.
Flying-fish.
Pelagic, and capable of suspending itself and moving by its expanded pectoral fins for a
time in the atmosphere.
Atlantic coast of North America, northward to Banks of Newfoundland: many coasts and
open seas.

*"Both specimens are males and differ from the normal in having three more rays (43) in the dorsal fin than the maximum normal number (40); and in the dorsal being on 11½ and 12 rings respectively instead of only 9 rings. It must be either a variety of *S. fuscum* or possibly a new species." Piers.

†Piers says;—"It presented a slight variation from the typical *S. fuscum*."

‡*H. antiquorum* recorded by Jones as "occasionally taken [in Nova Scotia] during the summer months; a Gulf Stream migrant no doubt" is probably referable to this species.

257. *Exonastes vinciguerræ* Jordan and Meek.
Flying-fish.
Pelagic, and rising out of the water sails or springs through the air.
Open Atlantic: extends from off Newfoundland southward, and occurs in the Gulf of Mexico: coasts of southern Europe.
258. *Cypselurus heterurus* Rafinesque.
Flying-fish.
Pelagic, and rising out of the water sails or springs through the air.
Grand Banks, Newfoundland, extending to both coasts of Atlantic Ocean.
259. *Ammodytes dubius* Reinhardt.
Sand Launce: Lant.
Marine: sandy shores.
Labrador and Greenland, southward to Cape Cod.
260. *Ammodytes americanus* De Kay.
Sand Launce: Sand Lant.
Marine: sandy shores.
Maritime Provinces, Gaspe Basin, Labrador, and Newfoundland: southward to Cape Hatteras, North Carolina.
261. *Ammodytes personatus* Girard.
Sand Launce.
Marine: "burying itself in the sand."
British Columbia: shores of the Pacific from California to Alaska, including the Aleutian Islands, and westward to Japan.
262. *Menidia menidia notata** Mitchill.
Silerside.
Marine.
Maritime Provinces and southward.
263. *Labidesthes sicculus* Cope.
Lake Silerside: Skipjack.
Lacustrine and fluvialile.
Great Lakes region and Mississippi valley southward to the southern United States.
264. *Atherinopsis californiensis* Girard.
Pescado del Rey: California Smelt.
Marine.
Ordinary range coast of California: three mounted specimens in the Canadian Fisheries Museum were obtained by Mr. S. F. Denton, taxidermist, in British Columbia.

*"An examination of numerous specimens of *Menidia* from various places between Florida and Halifax shows that *M. notata* and *M. menidia* intergrade perfectly. The first will therefore stand as *Menidia menidia notata*," Jordan and Evermann.

265. Chiasmodon niger Johnson.

Black Swallower.

Bathybial.

Recorded from Magdalena, Madeira—the first specimen by Lowe in 1850, at a depth of 312 fathoms; and the species found again at the same locality by Johnson in 1862: a specimen obtained by the 'Challenger' in the mid-Atlantic, on 26th August, 1873, at a depth of 1,500 fathoms: two specimens found floating upon the surface of the water—one near the island of Dominica, and the other, in June 1880, at La Have Bank,* off Nova Scotia, by the Gloucester schooner *Bessie W. Somers*.

266. Sphyræna argentea Girard.

California Barracuda.

Marine.

Recorded from Vancouver Island, British Columbia (—a specimen in the Provincial Museum, Victoria): "Pacific coast from San Francisco southward to Cape San Lucas; very abundant about the Santa Barbara Islands" (Jordan and Evermann).

267. Palinurichthys perciformis Mitchell.

Rudderfish.

Marine.

Atlantic coast of North America southward to Cape Hatteras, North Carolina: "Two specimens were brought to the Museum [at Halifax] some years ago by a fisherman of Devil's Island" and during the summer of 1885 "they were very plentiful in our [Halifax] harbour" (Honeyman, 1886, as *Palinurus perciformis*): Canso,† Nova Scotia, and Banks of Newfoundland: "one specimen once taken in a live-box off Cornwall [England], having drifted across from America" (Jordan and Evermann).

268. Palometa simillimus Ayres. (Plate XIII, figures 156 and 157).

California Pompano: Poppy Fish.

Marine.

British Columbia and Puget Sound, southward to California.

269. Poronotus triacanthus Peck.

Dollarfish: Harvest Fish.

Marine.

Maritime Provinces southward to Florida.

270. Icosteus ænigmaticus Lockington.

Ragfish.

Bathybial.

Off the coasts of the States of Washington, Oregon, and California: given here as likely to be found in British Columbian waters.

*This specimen, which had swallowed a fish larger than itself, is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America' vol. IV, pl. CCCXXXII. There is also a fine illustration of this species, which had swallowed a *Scopelus* much larger than itself in Dr. Günther's 'Introduction to the Study of Fishes' p. 311.

†The fishermen call this species the 'Rudder fish,' and are familiar with it, as they state that it follows their sailing vessels into port from the 'Banks.' " Cornish.

- 271. *Acrotus willoughbyi* Bean.**
 Ragfish.
 Bathybial.
 Known from the States of Washington and California: given here as likely to be found in British Columbian waters.
- 272. *Zaprora silenus* Jordan.**
 Prowfish.
 Marine.
 Only two specimens known, one from Nanaimo (the type,* which is in the Provincial Museum, Victoria) and the other from the Straits near Victoria, Vancouver Island.
- 273. *Merluccius bilinearis* Mitchill.** (Plate IX, figures 87 and 88).
 Silver Hake: Whiting.
 Marine.
 Ranges from the coast of Labrador, embracing Newfoundland, Gulf of St. Lawrence, Maritime Provinces, and the New England States, southward to the Bahama Islands.
- 274. *Merluccius productus* Ayres.**
 Pacific Hake.
 Marine.
 Ranges from British Columbia (according to Goode from Alaska) and Puget Sound southward to Santa Catalina Island.
- 275. *Boreogadus saida* Lepechin.**
 Northern Pollack.
 Marine: hiding in holes in floating ice.
 Arctic regions of America and Asia, extending from Greenland to Siberia: recorded from Labrador: also said to occur on coasts of Europe—no doubt far north.
- 276. *Pollachius virens* Linnaeus.** (Plate IX, figures 89 and 90).
 Pollack: Coalfish.
 Marine.
 Both sides of north Atlantic: recorded from Davis Straits;† Maritime Provinces southward to State of New York: "on the shores of Spitzbergen;" "in all the northern seas and in the Baltic;" Orkney and Shetland Islands; coasts of England; "on the Irish coast from Waterford along the eastern shore to Belfast;" and "very abundant on the western and northern coasts of Scotland" (Yarrell, 1859): "occurs about Iceland" (Goode, 1888): on the European side at least as far south as the coast of France.‡

*The type specimen is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. CLIL.

†"The fry, under four or five inches in length, were caught with the trawl-net on the west coast of Davis Straits, during the first voyage of Captain Sir Edward Parry." Yarrell.

‡"Concerning the limits of its southern range authorities differ. Günther places this at latitude 46° in the Bay of Biscay, whilst others claim that it enters the Mediterranean. Canestrini states that it has been observed at Taranto. It does not appear, however, that the species is abundant south of the English Channel." Goode.

277. *Theragra fucensis** Jordan and Gilbert.
Wall-eyed Pollack.
Marine.
British Columbia and Puget Sound southward to coast of California: probably extends northward to coast of Alaska.
278. *Microgadus proximus* Girard.
California Tomcod.
Marine.
British Columbia: ranges from coast of California northward to coast of Alaska, including the Aleutian Islands.
279. *Microgadus tomcod* Walbaum. (Plate IX, figures 91 and 92).
Tomcod: Frostfish.
Anadromous.
Ranges from coast of Labrador, and embracing the Gulf of St. Lawrence, Gaspé Bay, and Maritime Provinces, southward to the coast of Virginia.
280. *Gadus callarias* Linnaeus. (Plate IX, figures 93 and 94).
Common Codfish.
Marine.
Both sides of north Atlantic: ranging on the American side at least† from coast of Labrador, and embracing the Gulf of St. Lawrence, Gaspé Bay, Maritime Provinces, and Newfoundland, southward to coast of Virginia; and on the European side "found universally from Iceland very nearly as far south as Gibraltar" (Yarrell, 1859).
281. *Gadus macrocephalus* Tilesius.
Pacific Codfish.
Marine.
British Columbia: both coasts of northern Pacific, ranging from Bering Sea southward to the off-shore banks of Oregon and to Japan: said to be very abundant in the sea of Okhotsk.
282. *Gadus ogac* Richardson.
Greenland Codfish.
Marine.
Recorded from Labrador and Greenland.

*"This form may intergrade with *Theragra chalcogramma*, though the original types seem well separated. Little is known of its range to the northward." Jordan and Evermann.

†*G. callarias*, *G. macrocephalus*, and *G. ogac*, are very closely allied, and in assigning specific rank to each it is not easy from ichthyological works to determine just where the northern range of *G. callarias* is as the three forms are often treated of as one and the same species. For instance, Goode says:—"The codfish is usually found in the North Atlantic, in the North Pacific, and in the Polar Ocean, its range extending far beyond the Arctic Circle"—thus making no discrimination of species.

283. *Melanogrammus æglefinus* Linnaeus. ((Plate IX, figures 95 and 96).
Haddock.
Marine.
Both coasts of north Atlantic: on the American side ranging from coast of Labrador southward, and embracing Gulf of St. Lawrence, Maritime Provinces, and Newfoundland, to coast of North Carolina; and on the European side from Iceland and "the Scandinavian coast to East Finnmark and Varanger Fjord" (Goode, 1888) southward to the coast of France: "coast of Great Britain, from extreme north to the Land's End" and "all round the shores of Ireland" (Yarrell, 1859).
284. *Antimora viola* Goode and Bean.
Violet Antimora.
Bathybial.
"Fishing Banks off the coast" of Nova Scotia (Jones, 1879, as *Haloporphyrus viola*): Banks of Newfoundland, and southward.
285. *Antimora microlepis* Bean.
Small-scaled Antimora.
Bathybial.
Off Queen Charlotte Islands: also recorded from coast of California and Bering Sea.
286. *Lota maculosa** Le Sueur. (Plate IX, figure 97).
Fresh-water Ling: Burbot.
Lacustrine and fluviatile.
Well nigh cosmopolitan in northern North America: recorded from Labrador, and ranging from New Brunswick westward to British Columbia; and from the Arctic regions southward to northern States of the Union.
287. *Molva molva* Linnaeus.
Ling.
Marine.
Reputed to have been recorded off Newfoundland:† "common on the northern coasts of Europe, Iceland, and Greenland" (Günther, 1880, as *M. vulgaris*): in the British Islands—"among the Western Islands, in the Orkneys, and on the Yorkshire coast; in Cornwall, and the Scilly Islands; and the species may be traced nearly all round the Irish coast" (Yarrell, 1859, as *Lota molva*): ranges "from Spitzbergen to the Gulf of Gascony most abundant along the coast of northern Europe, especially in the German Ocean and off Norway" (Jordan and Evermann).

*"The American Burbot is very close to the common species of northern Europe and Asia, *Lota lota* and may prove wholly identical with the latter." Jordan and Evermann. Günther does not distinguish the two, for he says:—"It is locally distributed in Central and Northern Europe and North America." If the two are to be regarded as forms of one and the same species then the geographical range of the fresh water ling is in all probability nearly co-extensive with the fresh waters of the northern part of the northern hemisphere.

†"It is said to have been found in deep water off Newfoundland, but we have been unable to find the specific record." Jordan and Evermann.

288. **Urophycis regius** Walbaum.
Codling.
Marine.
"Sir John Richardson gives Halifax as a locality for this species" (Jones, 1879, as *Phycis regius*): north Atlantic southward to Cape Fear.
289. **Urophycis tenuis** Mitchill. (Plate IX, figures 98 and 99).
Codling: White Hake.
Marine.
Ranges from coast of Labrador southward to coast of North Carolina: Gulf of St. Lawrence, Gaspe Bay, Maritime Provinces, and Newfoundland.
290. **Urophycis chuss** Walbaum.
Codling: Squirrel Hake.
Marine.
Geographical range essentially the same as that of the preceding species.
291. **Gaidropsarus ensis** Reinhardt.
Three-bearded Rockling.
Bathybial.
"Atlantic coast of North America, from Greenland to Cape Hatteras; in deep water, reaching a depth in the Gulf Stream of 1,081 fathoms" (Jordan and Evermann).
292. **Enchelyopus cimbrius** Linnaeus.
Four-bearded Rockling.
Marine.
Both sides of north Atlantic, extending southward to the Gulf Stream: recorded from Chedabucto Bay, vicinity of Canso, Nova Scotia (Cornish, 1901 or 1902): "fishing banks off the coast" of Nova Scotia (Jones, 1879, as *Onus (Rhinochmus) cimbrius*): has been obtained in Bay Chaleur: "not uncommon on the southern coast of Sweden;" found also "among the islands of the Kattegat, on the west coast of Norway;" and recorded from the Frith of Forth and Rorhsay (Yarrell, 1859, as *Motella cimbria*).
293. **Brosme brosme** Müller. (Plate X, figures 100 and 101).
Cusk.
Marine.
Both sides of north Atlantic: ranging on the American side from Greenland, and embracing Labrador, Newfoundland, Maritime Provinces, and New England States, southward to coast of Massachusetts: "occurs in Iceland and Spitzbergen, and along the entire length of the Scandinavian Peninsula," and "occasionally taken in the Frith of Forth" (Goode, 1888): frequently found "in the Orkney Islands, and swarms among those of Zetland;" "among the Faroë Islands;" "coasts of Norway as far as Finmark;" and "just touches the most northern point of Denmark, at Skagen in Jutland" (Yarrell, 1859, as *Brosmius vulgaris*).
294. **Moseleya cyclolepis** Gilbert.
Bathybial.
Off Queen Charlotte Islands, British Columbia.

PLATE A.

- 100-101. *Brosme brosme* (Cusk)
 102-103. *Pomoxis sparoides* (Calico Bass)
 104-105. *Ambloplites rupestris* (Rock Bass)
 106-107. *Eupomotis villosus* (Common Sunfish)
 108-109. *Micropterus salmoides* (Large-mouth Black Bass)
 110-111. *Micropterus dolomieu* (Small-mouth Black Bass)
 112-113. *Stizostedion vitreum* (Pike Perch)
 114-115. *Stizostedion canadense* (Sauger)
 116-117. *Perca flavescens* (Yellow Perch)
 118-119. *Roccus lineatus* (Striped Bass)
 120-121. *Morone americana* (White Perch)
 122. *Cynoscion regalis* (Common Weakfish)
 123-124. *Aplodinotus grunniens* (Fresh-water Drum or Lake Sheephead)



295. *Albatrossia pectoralis* Gilbert.
Bathybial.
British Columbia: ranges from coast of Oregon northward to Bering Sea.
296. *Chalinura serrula* Bean.
Bathybial.
Coast of British Columbia east of Prince of Wales Island, Alaska.
297. *Chalinura filifera* Gilbert.
Bathybial.
Off Queen Charlotte Islands, British Columbia.
298. *Coryphænoides rupestris* Gunner.
Bathybial.
"Arctic seas and the north Atlantic, on both coasts south to the banks of Newfoundland and Norway" (Jordan and Evermann).
299. *Macrurus holotrachys* Günther.
Grenadier.
Bathybial.
Recorded from Banks of Newfoundland, and from the mouth of the Rio de la Plata.
300. *Macrurus acrolepis* Bean.
Grenadier.
Bathybial.
Coasts of British Columbia, and of the States of Washington and Oregon: also recorded from off Bogoslof Island, Bering Sea.
301. *Aphredoderus sayanus* Gilliams.
Pirate Perch.
Fluviatile: sluggish streams and bayous.
Presumably Ontario:* State of "New York coastwise to Texas, and throughout the Mississippi basin" (Jordan and Evermann).
302. *Pomoxis annularis* Rafinesque.
Crappie.
Lacustrine and fluviatile: frequenting sluggish waters.
Ranges from the St. Lawrence River and Great Lakes region westward to the Dakotas and southward to Texas.
303. *Pomoxis sparoides* Lacépède. (Plate X, figures 102 and 103).
Calico Bass: Strawberry Bass.
Lacustrine and fluviatile.
Provinces of Quebec and Ontario, through the Great Lakes region, including Lake of the Woods, westward to Manitoba: in the United States ranging from eastern States westward to the Mississippi Valley and southward to the southern States.

*"It should be found in the streams of the Niagara district and at the western end of Lake Erie." Nash.

304. **Ambloplites rupestris** Rafinesque. (Plate X, figures 104 and 105).
Rock Bass.
Lacustrine and fluviatile.
Provinces of Quebec and Ontario, embracing the St. Lawrence River and Great Lakes region, westward to Manitoba: in the United States ranging from Vermont westward to the Mississippi Valley and southward to Louisiana and Texas.
305. **Chænobryttus gulosus** Cuvier and Valenciennes.
Warmouth: Goggle-eye.
Lacustrine and fluviatile.
Presumably Ontario:* Great Lakes region, westward to Iowa and Kansas, and southward to Georgia and Texas.
306. **Apomotis cyanelus** Rafinesque.
Green Sunfish.
Lacustrine and fluviatile: ascending brooks.
Possibly Ontario:† ranges from Great Lakes region to Mexico.
307. **Lepomis auritus** Linnaeus.
Long-eared Sunfish: Yellow Belly.
Fluviatile.
New Brunswick:‡ Maine to southern United States.
308. **Lepomis megalotis** Rafinesque.
Long-eared Sunfish.
Fluviatile.
Possibly Ontario: Ohio to Minnesota, and southward to South Carolina and the Rio Grande.
309. **Lepomis humilis** Girard.
Red-spotted Sunfish.
Lacustrine and fluviatile.
Recorded from Langford Lake, British Columbia§ (May 1908—specimen in Provincial Museum, Victoria): ranges from Ohio westward to the Dakotas and southward to Texas.

*"I am under the impression that some years ago this fish was found in the marsh at Toronto, and also near Hamilton, but of late no specimens have been obtainable. It should occur in Lake Erie and will probably be found in the Niagara district." Nash.

†"I have no Ontario records of this fish, but as it will probably be found in Lake Erie it is mentioned here." [Check-list Fishes of Ontario.] Nash.

‡In regard to its occurrence in New Brunswick Dr. Cox says that the only record he knows is that of Dr. Leath Adams, and that its alleged occurrence in that province is extremely doubtful.

§This is the only record for Canada of this species known to the author, and the locality is a long way from the hitherto recognized range of the species. It may possibly range in waters of the Prairie Provinces, but as yet does not appear to have been recorded.

310. *Lepomis pallidus* Mitchill.

Blue Sunfish.

Lacustrine and fluviatile.

Ontario and Great Lakes region: ranging in the United States from the western part of the State of New York westward to the Missouri Valley and southward to the Rio Grande and Florida, or according to Goode to Mexico.

311. *Eupomotis euryorus* McKay.

Lacustrine and fluviatile.

The type recorded from Fort Gratiot, Lake Huron, Michigan, opposite Point Edward, Ontario (McKay, 1881, as *Lepomis euryorus*); and for that reason mentioned here: also recorded from northern Ohio and northern Indiana.

312. *Eupomotis gibbosus* Linnæus. (Plate X, figures 106 and 107).

Common Sunfish.

Lacustrine and fluviatile.

Ranging in Canada from the Maritime Provinces to Lake Huron; and in the United States from Maine westward to the Mississippi Valley, and southward to Florida.

313. *Micropterus dolomieu* Lacépède. (Plate X, figures 110 and 111).

Small-mouth Black Bass.

Lacustrine and fluviatile.

Widely distributed in the Provinces of Ontario and Quebec, extending through the St. Lawrence River and Great Lakes region westward to Manitoba and the Mississippi Valley, and southward to South Carolina, Mississippi, and Arkansas: introduced into waters of other Provinces of the Dominion, and of various States of the Union, and also into waters of various European countries.

314. *Micropterus salmoides* Lacépède. (Plate X, figures 108 and 109).

Large-mouth Black Bass.

Lacustrine and fluviatile.

Provinces of Ontario and Quebec, extending through the St. Lawrence River and Great Lakes region westward to Manitoba: ranges in the United States from the Great Lakes westward to the Mississippi Valley, and southward to southern States: also in waters of Mexico.

315. *Stizostedion vitreum* Mitchill. (Plate X, figures 112 and 113).

Pike Perch.

Lacustrine and fluviatile.

Provinces of Ontario and Quebec, extending through the St. Lawrence River and Great Lakes region westward to Saskatchewan: Hudson Bay region and Labrador: ranges in the United States from Vermont westward to the upper Mississippi Valley and southward to Alabama and Georgia.

- 316. *Stizostedion canadense*** C. H. Smith. (Plate X, figures 114 and 115).
Sauger.
Lacustrine and fluviatile.
Provinces of Ontario and Quebec: distributed under one or two varieties* from the St. Lawrence River and its tributaries westward, and embracing Manitoba, and perhaps Saskatchewan, to Montana, and southward to Arkansas.
- 317. *Perca flavescens*** Mitchill. (Plate X, figures 116 and 117).
Yellow Perch: American Perch.
Lacustrine and fluviatile.
Widely distributed in British North America from the Atlantic sea-board to Saskatchewan, and in the United States from Maine to the upper Missouri Valley, and extending southward to North Carolina.
- 318. *Percina caprodes***† Rafinesque.
Log Perch.
Lacustrine and fluviatile.
Extends from the Province of Quebec through the St. Lawrence River and Great Lakes region, westward to Lake Superior and Iowa, and southward to the Rio Grande and State of Mississippi.
- 319. *Hadropterus aspro*** Cope and Jordan.
Black-sided Darter.
Fluviatile: frequenting clear gravelly streams.
Ranges from the Great Lakes region westward to Manitoba and the Missouri Valley and southward to Arkansas.
- 320. *Hadropterus güntheri*** Eigenmann and Eigenmann.
Günther's Darter.
Fluviatile and lacustrine.
Manitoba to Iowa: presumably Fort Gratiot, Lake Huron, Michigan, opposite Point Edward, Ontario (Girard, 1859, as *Alvordius maculatus*).‡
- 321. *Cottogaster copelandi putnami***§ Jordan and Gilbert.
Putnam's Darter.
Lacustrine and fluviatile.
Ranges from Lake Champlain to Lake Huron.
- 322. *Cottogaster shumardi*** Girard.
Shumard's Darter.
Fluviatile.
Possibly to be found in Ontario waters: "Michigan to Ohio, Indiana, and Illinois, and southward to Kentucky and Arkansas" (Jordan and Evermann).

*Three varieties of this species have been distinguished: the typical form and *S. c. griseum* and *S. c. boreum*.

†Two varieties of this species have been distinguished: the typical form and *P. c. zebra*.

‡"*Alvordius maculatus* is more likely to be *Hadropterus güntheri* than *H. aspro*, as Girard describes it as having the head scaleless. Perhaps both are varieties of one species." Jordan and Evermann.

§Questionably distinct from the ordinary *C. copelandi*.

323. **Cottogaster cheneyi** Evermann and Kendall.
Cheney's Darter.
Fluviatile.
Known from Racket River, near Norfolk, St. Lawrence County, State of New York: given here as it may be found in Ontario waters.
324. **Boleosoma nigrum** Rafinesque.
Johnny Darter.
Fluviatile and lacustrine: frequenting streams among gravel and weeds.
St. Lawrence River and Great Lakes region, and Ohio valley, westward to Saskatchewan and upper Mississippi valley, extending southward to Colorado.
325. **Boleosoma nigrum olmstedii** Storer.
Tesselated Darter.
Fluviatile and lacustrine.
Province of Quebec, St. Lawrence River, and southern and eastern parts of Ontario: extending southward to Virginia.
326. **Ammocrypta pellucida** Baird.
Sand Darter.
Lacustrine and fluviatile: burys in the sand in clear streams.
Will likely be found in Ontario: ranges from Lake Erie westward to Minnesota, and southward to Texas.
327. **Etheostoma boreale** Jordan.
Northern Darter.
Lacustrine and fluviatile.
Known localities of occurrence:—near Montreal (Jordan, 1884, as *Pacillichthys borealis* —the type); Gull Lake, Muskoka district, Ontario; and Manitoba: perhaps occurs far north in the Province of Quebec, and records may be looked for from other localities.
328. **Etheostoma iowæ** Jordan and Meek.
Fluviatile and lacustrine.
Saskatchewan and perhaps Manitoba: range extending southward to Iowa and Nebraska.
329. **Etheostoma cœruleum** Storer.
Rainbow Darter.
Fluviatile.
Ontario, and Ohio and Mississippi valleys.
330. **Etheostoma flabellare** Rafinesque.
Fan-tailed Darter.
Fluviatile: living in swift streams.
Province of Quebec: ranging in the United States westward to Iowa, and southward to southern States.

- 331. *Boleichthys fusiformis*** Girard.
Fusiform Darter.
"Lowland streams and ponds."
Massachusetts westward to Minnesota, and southward to the Rio Grande: probably occurs in Canadian waters.
- 332. *Boleichthys exilis*** Girard.
Fluviatile.
Known from Red River and upper Missouri River basin.*
- 333. *Microperca punctulata*** Putnam.
Least Darter.
"Clear, cold, weedy streams, and ponds."
Ranges from Michigan, Wisconsin, and Minnesota, southward to Arkansas: perhaps occurs in Canadian waters.
- 334. *Roccus chrysops***† Rafinesque.
White Bass.
Lacustrine and fluviatile.
St. Lawrence River and Great Lakes region, westward to Manitoba and Mississippi valley, and southward to Arkansas: recorded from Lake Oromocto, one of the head waters of the Magaguadavic River, New Brunswick‡ (Cox, 1895, after Adams).
- 335. *Roccus lineatus*** Bloch. (Plate X, figures 118 and 119).
Striped Bass.
Anadromous: essentially a brackish water species.
Atlantic coast of North America, from the Maritime Provinces to the Gulf of Mexico: ascends the Miramichi and St. Lawrence Rivers and tributaries; as well as "the Potomac to the Great Falls, and the other rivers of the Middle States, until it meets obstructions" (Jordan and Evermann): said to occur occasionally in Lake Ontario, and "has been taken at the mouth of the Niagara River"§ (Ramsay Wright): introduced into waters of the Pacific coast by the United States Fish Commission.

*"Specimens of a small darter obtained by Mr. Charles H. Bollman in Clam Lake, Michigan, may belong to this species." Jordan and Evermann.

†"This is doubtless the Silver Bass of Canada, the details of whose introduction into France, and successful propagation by M. Carbonnier, from 1877 to 1879, are recorded by that experimenter in the Bulletin of the Society of Acclimation for 1881." Goode.

‡Dr. Cox considers that the present occurrence of this species in Lake Oromocto is doubtful, and not only so, but that the record of Dr. Adams is open to question.

§"There is a record of an example taken in the Niagara River at Lewiston, but this may have been a misidentification of the white bass." Jordan and Evermann. "The White Bass or Striped Lake Bass, *Roccus chrysops* is often confounded with the Striped Bass which it closely resembles." Goode.

- 336. *Morone americana*** Gmelin. (Plate X, figures 120 and 121).
White Perch.
Anadromous, being essentially a brackish water species: often landlocked.
Atlantic coast of North America from the Gulf of St. Lawrence and Maritime Provinces to South Carolina; recorded as abounding "in the numerous lakes of Nova Scotia" (Knight, 1866, as *Labrax pallidus*).
- 337. *Cynoscion regalis*** Bloch and Schneider. (Plate X, figure 122).
Common Weakfish.
Marine: on sandy shores.
Mr. S. F. Denton, taxidermist, Wellesley Farms, Mass., writes that he has mounted specimens which he understood from the senders had been obtained at coasts of Nova Scotia: reputed range "Atlantic and Gulf coast of the United States from Cape Cod southward to Mobile" (Jordan and Evermann).
- 338. *Cynoscion nobilis*** Ayres.
White Sea Bass.
Marine.
Vancouver Island, southward to coast of California.
- 339. *Aplodinotus grunniens*** Rafinesque. (Plate X, figures 123 and 124).
Fresh-water Drum: Lake Sheepshead.
Lacustrine and fluvial.
Extends from Ontario, through the Great Lakes region, westward to Manitoba; and ranging through the Ohio and Mississippi valleys southward to Louisiana and Texas: also recorded from the Rio Usumacinta, Tabasco, southern Mexico.
- 340. *Eques lanceolatus*** Linnaeus.
Ribbon-fish.
Marine.
Recorded from Sherringham Point, British Columbia (specimen in Provincial Museum, Victoria): "West Indies, ranging northward to Pensacola" (Jordan and Evermann): certain warm seas.
- 341. *Ronquilus jordani*** Gilbert.
Ronquil.
Marine.
Recorded from Departure Bay,* Vancouver Island, from Puget Sound, and from coast of Alaska.
- 342. *Trichodon trichodon*** Tilesius.
Sand-fish.
Marine: burys in the sand of sandy shores.
British Columbia: ranges from coast of California to Bering Sea, and Kamchatka (Tilesius, 1811).

*A specimen of this species was dredged at Departure Bay, Vancouver Island, near the Biological Station by the late Rev. G. W. Taylor, the then Curator of the station, and the author, in the Autumn of 1908, being its first record in Canadian waters.

343. *Stenotomus chrysops* Linnaeus.
Porgy: Common Scup.
Marine.
Possibly occurs in St. Mary's Bay, Nova Scotia* (Knight, 1866, as *Pagrus argyrops*): ordinarily ranges from Cape Cod to South Carolina, being "especially abundant northward."
344. *Archosargus probatocephalus* Walbaum.
Sheepshead.
Marine.
Said to be occasional in St. John's Harbour, New Brunswick (Cox, 1895, as *Diplodus probatocephalus*): ranges ordinarily from Cape Cod to Florida Keys and the Gulf of Mexico.
345. *Cymatogaster aggregatus* Gibbons.
Sparada: Viviparous Perch.
Marine: in shallow water.
British Columbia: ranges from Alaska to Lower California, Mexico.
346. *Brachyistius frenatus* Gill.
Surf-fish.
Marine: in shallow water.
Ranges from Vancouver Island to Lower California.
347. *Amphistichus argenteus* Agassiz.
Surf-fish.
Marine: in shallow water.
Ranges from entrance to Straits of Juan de Fuca at Cape Flattery, State of Washington, southward to coast of California: given here as it ought to be found on the British Columbian side of the Straits.
348. *Embiotoca jacksoni* Agassiz.
Common Surf-fish: Blue Surf-fish.
Marine.
Ranges from Vancouver Island to Todos Santos Bay.
349. *Tæniotoca lateralis* Agassiz. (Plate XIII, figures 158 and 159).
Striped Surf-fish.
Marine.
Ranges from British Columbia to coast of California.
350. *Phanerodon furcatus* Girard.
White Surf-fish.
Marine.
Ranges from British Columbia to coast of California.

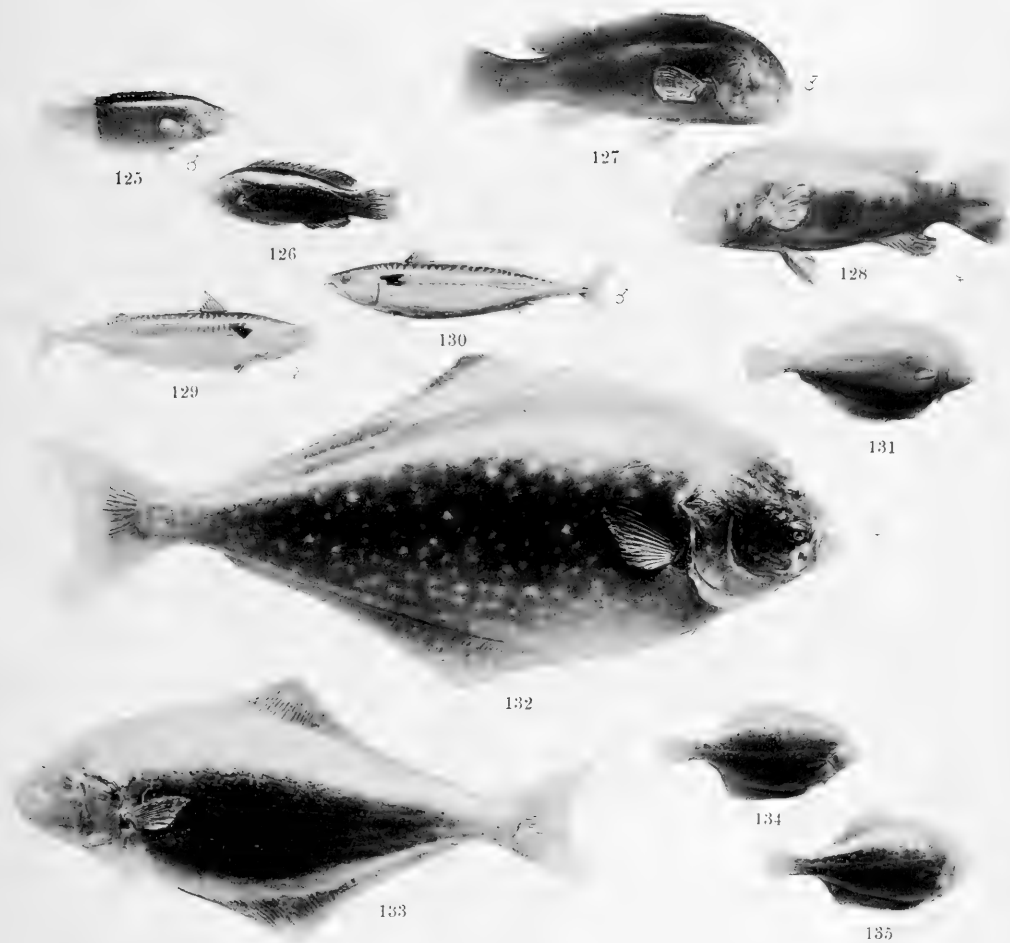
*"This fish is seldom found north of Cape Cod. About the year 1833, an attempt was made to introduce them [sic] into the waters north of the Cape, but with no success, the water proving too cold to enable them to breed there. The only authority that the writer possesses as to their existence on the coast of Nova Scotia, is, the 'Official Circular' from Mr. Gidney, the collector of Sandy Cove, in which it is stated that *porgies* are occasionally seen in St. Mary's Bay. If they are the true *porgies* they have probably strayed from a warmer latitude in pursuit of food." Knight.

PLATE XI.

- 125-126. *Tautoglabrus adspersus* (Cunner)
127-128. *Tautoga onitis* (Tautog)
129-130. *Scomber scombrus* (Common Mackerel)
131. *Hippoglossoides platessoides* (Sand Dab)
132. *Hippoglossus hippoglossus* (Halibut)
133. *Hippoglossus hippoglossus* (Halibut—specimen with the eyes on the left side of the head,
an abnormal but an occasional character)
134-135. *Pseudopleuronectes americanus* (Winter Flounder)

PLATE XI

- 130-131. *Tantoglyphus aspersus* (Cunier)
- 132-133. *Tantoglyphus* (Cunier)
- 134-135. *Tantoglyphus* (Cunier)
- 136. *Hippoglossus platycephalus* (Zand Dab)
- 137. *Hippoglossus hippoglossus* (Haddock)
- 138. *Hippoglossus hippoglossus* (Haddock)
- 139-140. *Pseudopleuronectes americanus* (Winter Flounder)



- 351. *Damalichthys argyrosomus*** Girard. (Plate XIII, figures 160 and 161).
 Porgee.
 Marine: "entering the inlets in thousands."
 Pacific Coast from British Columbia and Puget Sound to Lower California.
- 352. *Tautogolabrus adspersus*** Walbaum. (Plate XI, figures 125 and 126).
 Gunner.
 Marine: in harbours and bays.
 Atlantic coasts of North America extending from Labrador and Newfoundland to Sandy Hook, and embracing the Gulf of St. Lawrence, Gaspé Bay, Maritime Provinces, and New England States.
- 353. *Tautoga onitis*** Linnaeus. (Plate XI, figures 127 and 128).
 Tautog; Black-fish.
 Marine: among rocks and kelp.
 Atlantic coasts of North America from the Maritime Provinces to South Carolina.
- 354. *Scomber scombrus*** Linnaeus. (Plate XI, figures 129 and 130).
 Common Mackerel.
 Marine.
 Both sides of North Atlantic: on the American side from Labrador to Cape Hatteras, North Carolina; and on the European side from Norway to the Mediterranean and Adriatic.
- 355. *Scomber japonicus*** Houttuyn.
 Chub Mackerel.
 Marine.
 Widely distributed in the Atlantic and Pacific Oceans; extending as far northward as British Columbia, Labrador, and England; abounds off the coast of California, in the Mediterranean, and "everywhere in Japan" (Jordan, 1905).
- 356. *Gymnosarda pelamis*** Linnaeus.
 Oceanic Bonito.
 Pelagic.
 Warm seas; ranging northward on the western side of the Atlantic to the Bermudas and Cape Cod; recorded from the Atlantic coast of Canada (Whiteaves, 1886, as *Euthynnus pelamys*);* also recorded from coast of California; coasts of Europe,—including coasts of Britain (Yarrell, 1859, as *Thynnus pelamys*).

*The small specimen upon which this record is based is in a very poor state of preservation and hard to determine, but judging by what can be made out from the ragged and broken condition of the fins and their rays, and the otherwise mutilated condition of the specimen it does not appear to be this species. Certain of its characters, some of them more or less obscure, are as follows:—Maxillary not reaching the posterior border of the orbit: pectorals about mid-way between dorsal and ventral outlines: caudal deeply forked: anterior dorsal elongate with 20 rays: posterior dorsal and anal short: 8 dorsal and 7 anal finlets: many other characters obscured, with little but the flesh remaining on the left side, and skin of the right scaleless, except very small scales, forming a corselet, which does not appear to extend beyond the pectoral fin. It would appear to agree more closely with *Sarda* than with *Gymnosarda*.

357. *Thunnus thynnus* Linnaeus.

Tunny: Horse Mackerel.

Pelagic.

Occurs on the Atlantic coast of Canada and the United States, around the coast of Newfoundland and at the Loffoden Islands; also on the Pacific coasts as far northward as California and Japan: "abundant in the Mediterranean and ranging to the south coast of England and to Tasmania" (Günther, 1880); Yarrell (1859) says it has "been taken among the islands west and north of Scotland" and at a few other Scottish localities, and mentions "two instances of its having been taken on the Irish coast": occurs also in the Indian Ocean (Boulenger, 1910).

358. *Germo alalunga* Gmelin.

Longfinned Albacore.

Pelagic.

Widely distributed, but rare on the Atlantic coast of America: a specimen obtained at Banquereau at a depth of 300 fathoms in the summer of 1878 (Jones, 1879, as *Orcynus alalunga*): occurs on the Pacific coast northward to California, and abundant at the Santa Barbara Islands: "very common in the Mediterranean."

359. *Sarda sarda* Bloch.

Bonito.

Pelagic.

Abundant in Atlantic Ocean northward to Cape Cod: occasional on coast of Nova Scotia—"a very rare fish in these waters" (Piers, 1902): "a young example captured at the mouth of Halifax Harbour" (Jones, 1879, as *S. pelamys* if such signifies this species): inhabits the open ocean, and occurs on both sides of the Atlantic.

360. *Sarda chilensis* Cuvier and Valenciennes.

California Bonito.

Marine.

British Columbia: ranging in the Pacific Ocean from Patagonia to Japan.

361. *Escolar violaceus* Bean.

Escolar.

Bathybial.

Typespecimen* from La Have Bank, off Nova Scotia (Bean, 1887, as *Thyrstilops violaceus*): "lives in the abysses of the Gulf Stream" (Jordan, 1905).

362. *Benthodesmus atlanticus* Goode and Bean.

Marine.

"One specimen taken from the stomach of a halibut caught on the western edge of the Grand Banks of Newfoundland in 80 fathoms" (Jordan and Evermann).

*This specimen is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. CXXXV, and the specimen of the following species (*Benthodesmus atlanticus*) in pl. CXXXVI.

363. *Xiphias gladius* Linnaeus.

Sword-fish.

Pelagic.

Atlantic Ocean, and on both its sides: Maritime Provinces and Newfoundland Banks: occurs also in the Pacific Ocean, and in the Mediterranean; and according to Goode (1888) enters the Baltic; otherwise distributed in many seas, being, he said, "of nearly world-wide distribution" and "occurring occasionally on the coasts of Great Britain and Ireland" (Boulenger, 1910); and also occurring at the South Sea Islands (Günther, 1885); yet according to Jordan (1935) "rare off the California coast" and "scarcely known in Japan."

364. *Naucrates ductor* Linnaeus.

Pilot-fish.

Pelagic.

"Known in all tropical and temperate seas" (Günther, 1880): "occasionally appears on our [British] coasts, accompanying large sharks and ships" (Boulenger, 1910): "our specimen was brought to the Museum [at Halifax] for identification—it must have been caught near our harbour"—(Honeyman, 1886): "occasional on our Atlantic coast from Cape Cod to the West Indies" (Jordan and Evermann).

365. *Seriolo zonata* Mitchell.

Rudderfish: Banded Seriole.

Marine.

A specimen "was caught on the banks south of Devil's Island" off Nova Scotia (Honeyman, 1886): ranges ordinarily from Cape Cod to Cape Hatteras.

366. *Decapterus macarellus* Cuvier and Valenciennes.

Mackerel Shad.

Marine.

Chedabucto Bay, Canso, Nova Scotia:* "warm parts of the Atlantic, straying northward to Cape Cod; scarce on our coast" (Jordan and Evermann).

367. *Trachurops crumenophthalmus* Bloch.

Goggler.

Marine.

Recorded from Canso, Nova Scotia:† ordinarily ranges on the Atlantic and Pacific‡ coasts of tropical America, extending occasionally northward to Cape Cod: abundant at the West Indies, the Bermudas, the Hawaiian Islands, and on the west coast of Mexico: occurs besides in most tropical seas, and on the coast of Africa: "in the Indian Ocean, the Red Sea, and off the coast of Guinea" (Goode, 1888, as *Caranx crumenophthalmus*).

*"Two specimens of this species were caught in the Chedabucto Bay trap-nets. They were wholly unfamiliar to the fishermen, and are apparently rarely seen at Canso." Cornish.

†"Two specimens were taken in the trap-nets by local fishermen, to whom the fish was unknown before. The specimens were found to differ from the description of Drs. Jordan and Evermann in two respects—there are no scales on the cheeks, and along the side, a bright golden yellow band passes longitudinally below the lateral line anteriorly; but about midway it crosses and then passes back above the lateral line." Cornish. Mr. Cornish queries the species.

‡"We are unable to see any difference between the Pacific Coast form *Trachurus brachychirus*, Gill, and the ordinary *crumenophthalmus*." Jordan and Evermann.

368. **Caranx crysos** Mitchill.
Hardtail: Yellow Mackerel.
Marine.
According to Jones, not uncommon in the waters of Nova Scotia (1879, as *Paratractus pisquetus*): ranges southward to coast of Brazil: according to Evermann and Marsh "one of the best game-fishes of Porto Rico."
369. **Selene vomer** Linnæus.
Moonfish.
Marine.
"Specimens are occasionally taken in shore waters" of Nova Scotia (Jones, 1879, as *Argyriosus vomer*); and "the young of it is said, in one or two instances, to have been found as far north as Halifax" (Honeyman, 1886, as *S. argentea*): ordinarily Atlantic and Pacific* coasts of America "from Cape Cod to Brazil, and from California to Peru": included among the fishes of Porto Rico "on the authority of Poey and Stahl" (Evermann and Marsh, 1899).
370. **Pomatomus saltatrix** Linnæus.
Bluefish.
Marine.
"Inserted on the authority of Dr. Bernard Gilpin, who has seen specimens taken on this [Nova Scotian] coast" (Jones, 1879): widely distributed: Atlantic and Indian Oceans, and occasionally occurring in the Mediterranean.
371. **Brama raii** Bloch.
Pomfret.
Pelagic.
British Columbia and Puget Sound, southward to Santa Catalina: Grand Banks, Newfoundland, and the Bermuda Islands: coasts of Europe, including the British Isles, and northward to the Farøe Islands: also occurs on the coast of Japan.
372. **Atheresthes stomias** Jordan and Gilbert.
Arrow-toothed Halibut.
Marine.
British Columbia: ranges from coast of California northward to Bering Sea.
373. **Reinhardtius hippoglossoides** Walbaum.
Greenland Halibut.
Marine.
Arctic regions, extending southward to the Grand Banks and to Finland: coasts of Greenland:† Fortune Bay, Newfoundland: recorded from Canso, Nova Scotia (Cornish, 1901 or 1902): "occasional specimens are brought us from the northern fishing banks [of Nova Scotia], but it is more common off Newfoundland" (Jones, 1879, as *Platysomatichthys hippoglossoides*).

*"The Pacific Coast form *brevoortii-pacificus*, is not evidently different from *Selene vomer*." Jordan and Evermann.

†"It is said to be found chiefly in the ice-fjords and between the great ice fields in Northern Greenland." Jordan and Evermann.

- 374. *Hippoglossus hippoglossus* Linnaeus.** (Plate XI, figures 132 and 133).
Halibut.
Marine.
Northern seas; ranging from the Arctic regions southward: Atlantic and Pacific coasts of British North America and United States; as far south at least as Montauk Point and the Farallone Islands; occurs plentifully in Bering Sea northward to Bering Straits: "along the entire west coast of Greenland. Iceland and north to Spitzbergen, in latitude 80°" (Goode); numerous seas of northern Europe southward at least to the coast of France.
- 375. *Lyopsetta exilis* Jordan and Gilbert.**
Marine.
Ranges from coast of California, at least as far north as Puget Sound: probably occurs in waters of British Columbia.
- 376. *Eopsetta jordani* Lockington.**
California Sole.
Marine.
British Columbia and Puget Sound southward to coast of California.
- 377. *Hippoglossoides platessoides* Fabricius.** (Plate XI, figure 131).
Sand Dab; Rough Dab.
Marine.
Both sides of North Atlantic: ranging on the American side from Greenland southward to coast of Massachusetts, and embracing Labrador, doubtless Newfoundland, Gulf of St. Lawrence, Gaspé Bay, Maritime Provinces, La Have Bank, and New England States; and on the European side from the Scandinavian coast southward to the coast of England.
- 378. *Hippoglossoides elassodon* Jordan and Gilbert.**
Marine.
British Columbia: ranges from Bering Sea southward to Puget Sound: also occurs on coast of Kamchatka.
- 379. *Psettichthys melanostictus* Girard.**
Sole.
Marine: near the shore.
British Columbia: ranges from coast of Alaska southward to coast of California.
- 380. *Pleuronichthys cœnosus* Girard.**
Muddy Flounder.
Marine.
British Columbia and Puget Sound: ranging from coast of California to coast of Alaska.
- 381. *Parophrys vetulus* Girard.**
Sharp-nosed Flounder.
Marine.
British Columbia: ranges from Santa Barbara, California, to coast of Alaska.

382. *Inopsetta ischyra* Jordan and Gilbert.
Marine.
Recorded from Puget Sound: given here as likely to occur in British Columbia.
383. *Isopsetta isolepis* Lockington.
Marine.
Range known to extend from Puget Sound south to Point Concepcion: doubtless occurs in British Columbia.
384. *Lepidopsetta bilineata* Ayres. (Plate XIII, figure 153).
Two-lined Flounder.
Marine.
British Columbia: ranges from coast of California to Bering Straits: "in Bering Sea it far outnumbers all other flounders" (Jordan and Evermann).
385. *Limanda ferruginea* Storer. (Plate XII, figures 148 and 149).
Rusty Dab.
Marine.
Maritime Provinces and Gaspe Bay: ranges from coast of Labrador southward to State of New York.
386. *Limanda aspera* Pallas.
Alaska Dab.
Marine.
Ranges from Vancouver Island northward to Bering Sea, and from Siberia southward to Sea of Okhotsk.
387. *Pseudopleuronectes americanus* Walbaum. (Plate XI, figures 134 and 135).
Winter Flounder: Common Flatfish.
Marine.
Ranges from the coast of Labrador southward to South Carolina, and embracing Gulf of St. Lawrence, Maritime Provinces, and New England States.
388. *Liopsetta putnami* Gill.
Eel-back Flounder: Smooth Flounder.
Marine.
Atlantic coast of North America, ranging from beyond Labrador southward to Cape Cod: its records within the limits of its range appear to be somewhat local: recorded from Labrador; Fignish, Prince Edward Island (Cornish, as *Lepidopsetta putnami*); Grand Manan; and represented in the United States National Museum, and in the Museum of Comparative Zoology, by specimens from various localities on the New England coast.
389. *Platichthys stellatus* Pallas. (Plate XIII, figure 150).
Starry Flounder.
Marine: in shallow water: sometimes ascends rivers.
British Columbia: widely distributed from the Arctic Ocean southward to the Amur River, and Pacific coasts of Asia: abounds in Bering Sea.

390. *Microstomus pacificus* Lockington.
Slippery Sole.
Marine.
British Columbia: ranges from coast of California northward to the Aleutian Islands.
391. *Glyptocephalus cynoglossus* Linnaeus.
Craig Fluke: Pole Flounder.
Marine.
Both sides of North Atlantic: "abundant in Bedford Basin, the inner expansion of Halifax Harbour" (Goode, 1888): recorded from Chedabucto Bay, Nova Scotia (Cornish, 1901 or 1902): La Have fishing bank (Jones, 1879): on the American side ranges southward at least to coast of Massachusetts; and northward according to Goode (1888) "it ranges nearly to Greenland": occurs also on certain European coasts.
392. *Glyptocephalus zachirus* Lockington.
Long-finned Sole.
Marine.
British Columbia: ranges from coast of California northward to Bering Sea.
393. *Lophosetta maculata* Mitchell.
ERRATUM
For 393 *Lophosetta maculata* read 393 *Lophopsetta maculata*.
394. *Citharichthys sordidus* Girard.
Soft Flounder.
Marine.
Ranges from British Columbia southward to the Mexican boundary.
395. *Gobius nicholsii* Bean.
Goby.
Marine.
Coast of British Columbia.
396. *Lepidogobius lepidus* Girard.
Goby.
Marine.
Ranges from Vancouver Island to Lower California.
397. *Quietula y-cauda* Jenkins and Evermann.
Goby.
Lives in mud flats at mouths of rivers and lagoons.
Ranges from British Columbia to Guaymas, Sonora.
398. *Clevelandia ios* Jordan and Gilbert.
Goby.
Marine.
British Columbia and Puget Sound.

399. **Remora remora** Linnaeus.
Remora: Sucking-fish.
Marine: attaching itself to sharks, vessels, or other objects.
Recorded from Atlantic coast of Canada (Whiteaves, 1886, as *Remora squalipeta*—specimen in Canadian Fisheries Museum): from Sechart, British Columbia (specimen in Provincial Museum, Victoria): from the British Islands* (Yarrell, 1859, as *Echeneis remora*): ordinarily ranges in warm seas—in North America extending northward to the coasts of the States of New York and California: abounds in the West Indies.
400. **Sebastes marinus** Linnaeus. (Plate XII, figures 136 and 137).
Snapper: Rose-fish.
Marine.
Both sides of the Atlantic Ocean: on the American side ranging from Greenland and Labrador southward to off the coast of New Jersey, and embracing the Maritime Provinces and Newfoundland: coasts of Europe northward to Iceland and Spitzbergen and southward to the British Channel.
401. **Sebastolobus alascanus** Bean.
Bathybial.
British Columbia: coast of California to Alaska and Bering Sea.
402. **Sebastolobus altivelis** Gilbert.
Bathybial.
British Columbia: Alaskan Peninsula, and off the coast of California.
403. **Sebastes paucispinis** Ayres. (Plate XIII, figure 162).
Jack-fish: Bocaccio.
Marine.
3 specimens, obtained by Mr. S. F. Denton, Taxidermist, from British Columbia, in the Canadian Fisheries Museum: a specimen listed in 1898 by Mr. John Fannin, at that time Curator of the Provincial Museum, Victoria, as belonging to the collection of that museum; but without locality:† ordinarily ranges on coast of California.
404. **Sebastes melanops** Girard. (Plate XIV, figures 177 and 178).
Black Sea Bass.
Marine.
Vancouver Island: ranges from Monterey to Kadiak Island, Alaska.
405. **Sebastes mystinus** Jordan and Gilbert. (Plate XIV, figures 175 and 176).
Black Rock-fish: Priest-fish.
Marine: in rather shallow water.
Vancouver Island to coast of California.

*^cThough natives of warmer latitudes, it is not surprising that they should occasionally come into precincts of the channel sticking on the bottoms of ships or transported by cosmopolite sharks." Yarrell.

†Mr. Kermode, the present Curator, considers that Mr. Fannin was in error in listing this species, as no specimen can be found in the museum.

PLATE XII.

- 136-137. *Sebastes marinus* (Snapper or Rosefish)
138-139. *Myoxocephalus octodecimspinosus* (Common Sculpin)
140-141. *Myoxocephalus grœnlandicus* (Daddy Sculpin)
142-143. *Hemitripterus americanus* (Sea Raven)
144-145. *Anarhichas lupus* (Wolf-fish)
146-147. *Zoarces anguillaris* (Eel Pout)
148-149. *Limanda ferruginea* (Rusty Dab)

PLATE XII.

- 138-137. *Myoxocephalus minimus* (Stanger or Rose)
- 138-136. *Myoxocephalus* sp. (Stanger or Rose)
- 140-141. *Myoxocephalus groenlandicus* (Daddy Seal)
- 142-143. *Hemirhamphus americanus* (Sea Raven)
- 144-145. *Ammobaculus lupus* (Wolf-fish)
- 146-147. *Norces anguillaris* (Eel Pond)
- 148-149. *Limanda ferruginea* (Rusty Dab)



136



138



140



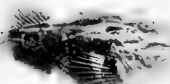
137



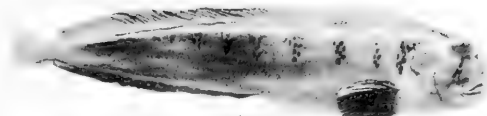
139



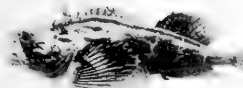
141



142



144



143



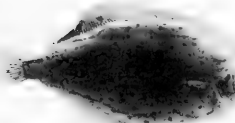
145



146



147



148



149



406. *Sebastodes brevispinis* Bean.
Marine.
Known from a specimen from Hassler Harbour, southeastern Alaska: may possibly be found in waters of British Columbia.
407. *Sebastodes alutus* Gilbert.
Marine.
British Columbia: ranges from coast of California to Bering Sea.
408. *Sebastodes pinniger* Gill.
Orange Rock-fish.
Marine.
Recorded from British Columbia: ranges southward, including Puget Sound, to coast of California.
409. *Sebastodes introniger* Gilbert.
Marine: in deep water.
British Columbia: ranges from the Santa Barbara Islands to the Aleutian Islands.
410. *Sebastodes ruberrimus* Cramer. (Plate XIV, figures 179 and 180).
Red Rock-fish: Tambor.
Marine.
Ranges from British Columbia and Puget Sound southward to coast of California.
411. *Sebastodes auriculatus dallii* Eigenmann and Beeson.
Brown Rock-fish.
Marine: enters Bays.
Ranges from British Columbia to Point Reyes.
412. *Sebastodes caurinus* Richardson.
Marine.
Ranges from British Columbia and Puget Sound to coast of Alaska.
413. *Sebastodes maliger* Jordan and Gilbert.
Yellow-backed Rock-fish.
Marine.
British Columbia: ranges from coast of California to coast of Alaska.
414. *Sebastodes chrysomelas* Jordan and Gilbert. (Plate XIII, figures 163 and 164).
Black and Yellow Rock-fish.
Marine.
Ranges from British Columbia and Puget Sound to coast of California.
415. *Sebastodes nebulosus* Ayres.
Yellow Spotted Rock-fish.
Marine.
Ranges from Vancouver Island to coast of California.
416. *Sebastodes nigrocinctus* Ayres. (Plate XIII, figures 165 and 166).
Black Banded Rock-fish.
Marine: in deep water.
Ranges from Vancouver Island to coast of California.

417. *Anoplopoma fimbria* Pallas. (Plate XIII, figures 167 and 168).
Coal-fish: Skil.
Marine.
Pacific coast of Canada from Straits of Juan de Fuca to Queen Charlotte Islands: entire range from coast of California to Aleutian Islands.
418. *Hexagrammos decagrammus* Pallas. (Plate XIV, figures 169 and 170).
Boregat: Starry Rock Trout.
Marine.
British Columbia: ranges from Point Concepcion to Kadiak Island.
419. *Hexagrammos stelleri* Tilesius.
Greenling.
Marine.
British Columbia: ranges from coast of California to Aleutian Islands and Kamchatka.
420. *Hexagrammos superciliosus* Pallas.
Red Rock-trout.
British Columbia: ranges from coast of California to Bering Sea.
421. *Ophiodon elongatus* Girard. (Plate XIV, figure 174).
Cultus Cod.
Marine.
British Columbia: ranges from Santa Barbara to coast of Alaska.
422. *Zaniolepis latipinnis* Girard.
Broad-fin Cod.
Marine.
British Columbia and Puget Sound south to coast of California.
423. *Oxylebius pictus* Gill.
Painted Cod.
Marine: lives among sea-weeds on rocky shores.
British Columbia and Puget Sound southward to coast of California.
424. *Jordania zonope* Starks.
Marine.
British Columbia and Puget Sound.
425. *Scorpaenichthys marmoratus* Ayres. (Plate XIV, figures 171-173).
Cabezón.
Marine.
Ranges from British Columbia and Puget Sound to coast of California.
426. *Chitonotus pugetensis* Steindachner.
Marine.
British Columbia and Puget Sound to coast of California.

427. *Icelinus strabo* Starks.
Marine.
British Columbia and Puget Sound.
428. *Astrolutes fenestralis* Jordan and Gilbert.
Marine.
British Columbia and Puget Sound.
429. *Artedius lateralis* Girard.
Marine: in rocky pools.
British Columbia and Puget Sound to San Luis Obispo.
430. *Artedius asperulus* Starks.
Marine.
British Columbia and Puget Sound.
431. *Axyrias harringtoni* Starks.
Marine.
British Columbia and Puget Sound.
432. *Artediellus atlanticus* Jordan and Evermann.
Marine.
Ranges from coast of Labrador to Cape Cod: recorded from off Sable Island (Kendall, 1909), and from the fishing banks off Nova Scotia (Jones, 1879, as *Centridermichthys uncinatus*).*
433. *Ruscarius meanyi* Jordan and Starks.
Marine.
British Columbia and Puget Sound.
434. *Icelus bicornis*† Reinhardt.
Marine.
Circumpolar: Greenland and Davis Straits: also Labrador, and southward to Cape Cod: Alaska, Finland, and Spitzbergen to northern Russia.
435. *Radulinus asprellus* Gilbert.
Marine.
Puget Sound and coasts of the States of Washington and Oregon: given here as likely to occur in British Columbia.

*In all probability *Centridermichthys uncinatus* in Jones' "List of the Fishes of Nova Scotia" is referable to this species.

†*I. bicornis* and *I. hamatus* are treated here as one and the same species; the name used being *I. bicornis*. "Circumpolar if all specimens named *bicornis* and *hamatus* belong to one species which is doubtful." "According to Dr. Lütken, *Cottus bicornis* is identical with *Icelus hamatus*, this opinion being based on a drawing of *bicornis* by Reinhardt." Jordan and Evermann.

436. *Asemichthys taylori** Gilbert.
Marine.
"Type, a female, 55 mm. long, from Departure Bay, Vancouver Island; collected by the Rev. G. W. Taylor" (Gilbert, published 1912): only specimen known.
437. *Triglops pingeli* Reinhardt.
Marine.
North Atlantic: at the north of its range extending from Greenland to Spitzbergen: on the American side, embracing Labrador, doubtless Newfoundland, Gulf of St. Lawrence, and Maritime Provinces, southward to Cape Cod; and on the European side to Christiansund.
438. *Triglops beani* Gilbert.
Marine.
Ranges from British Columbia and Puget Sound northward to coast of Alaska and Bering Sea; and occurring on both sides of the Aleutian Islands.
439. *Prionistius macellus* Bean.
Marine.
Ranges from British Columbia northward to coast of Alaska, including the Aleutian Islands.
440. *Hemilepidotus hemilepidotus* Tilesius.
Red Sculpin.
Marine.
British Columbia and Puget Sound: ranging from coast of California northward to coast of Alaska, hence westward to Kamchatka.
441. *Enophrys bison* Girard.
Stone Sculpin: Buffalo Sculpin.
Marine.
British Columbia and Puget Sound: ranging from coast of California northward to coast of Alaska.
442. *Cottus asper* Richardson.
Prickly Bull-head.
Fluviatile: abounding in cold mountain streams.
British Columbia, including Vancouver Island; and the States of Washington and Oregon.
443. *Cottus gulosus* Girard.
California Miller's Thumb.
Fluviatile: in coastwise streams.
Recorded from Shawnigan Lake, British Columbia; and from the coast range of California.

*This species is the type of a new genus. "I take pleasure in naming this interesting species for its discoverer, Rev. G. W. Taylor, Curator of the Biological Station at Nanaimo, B.C." Gilbert.

- 444. *Cottus semiscaber* Cope.**
 Rocky Mountain Bull-head.
 Fluvatile: in clear streams.
 Both slopes of the Rocky Mountain region: ranging from the Fraser River system, British Columbia, southward to New Mexico: "its eastern and northern limits not well ascertained" (Jordan and Evermann).
- 445. *Cottus ictalops* Rafinesque.**
 Blop.
 Lacustrine and fluvatile: clear lakes and rocky brooks, and lime-stone springs: enters caves.
 Provinces of New Brunswick, Quebec, and Ontario: St. Lawrence River and Great Lakes region: extending in the United States from the eastern States to the Dakotas and southward to southern States.
- 446. *Cottus ricei* Nelson.**
 Lacustrine.
 Recorded from Lakes Ontario and Michigan.
- 447. *Cottus onychus** Eigenmann and Eigenmann.**
 Fluvatile.
 Recorded from Bow River, Calgary, Alberta.
- 448. *Cottus pollicaris* Jordan and Gilbert.**
 Olivaceous Miller's Thumb.
 Lacustrine.
 Recorded from Manitoba (Prince, 1909); and from off Racine, Lake Michigan, Wisconsin (Jordan and Gilbert, 1882, as *Uranidea pollicaris*).
- 449. *Cottus cognatus* Richardson.**
 Great-Bear-Lake-Bullhead.
 Lacustrine.
 Great Bear Lake, Mackenzie District (Richardson, 1836): Lake Bennett, British Columbia (Evermann and Goldsborough, 1907): Labrador† (Kendall, 1909).
- 450. *Cottus aleuticus* Gilbert.**
 Fluvatile, and in brackish water.‡
 Recorded from Departure Bay, Vancouver Island, and "very abundant in the small streams passing through the village of Iliuliuk, Unalaska"—"probably the *Uranidea microstoma* of Lockington, based on specimens collected near St. Paul, Kodiak"—"extends southward in the Coast Range to Monterey" (Jordan and Evermann).

*"Not seen by us and perhaps not different from *Cottus pollicaris*." Jordan and Evermann.

†"Two specimens collected in North West River, July 27, are doubtfully identified as this species." Kendall. Recorded also from Labrador by Bowdoin in 1891, but queried by Kendall.

‡"A specimen transferred to the salt water aquarium on the *Albatross* seemed to suffer no inconvenience from the change of water and lived for several days." Jordan and Evermann.

451. *Cottus philonips* Eigenmann and Eigenmann.
Fluviatile.
Recorded from Kicking Horse River, Field, British Columbia: Fraser River Basin.
452. *Cottus spilotos* Cope.
Fluviatile.
Recorded from Hudson Bay region; and from Grand River at Grand Rapids, Michigan.
453. *Uranidea bendirei* Bean.
Fluviatile.
Recorded from the States of Washington, Oregon, and Idaho: given here owing to its occurrence so close to our border.
454. *Uranidea franklini** Agassiz.
Franklin's Sculpin.
Lacustrine.
North and east shores of Lake Superior (Agassiz, 1850, as *Cottus franklini*).
455. *Uranidea gracilis* Heckel.
Miller's Thumb: Blop.
Lacustrine and fluviatile.
Provinces of Quebec and New Brunswick, and Labrador: State of New York and New England States.
456. *Uranidea formosa*† Girard.
Lake Miller's Thumb.
Lacustrine and fluviatile.
Recorded from Madawaska River, New Brunswick (Cox, 1895): also recorded from Lake Ontario, off Oswego, State of New York, from a mutilated specimen from the stomach of a fresh water ling (Girard, 1850, as *Cottus formosa*).
457. *Myoxocephalus æneus* Mitchill.
Grubby: Pigmy Sculpin.
Marine: amongst sea-weeds near the shore.
Ranges from the Bay of Fundy to the coast of the State of New York.
458. *Myoxocephalus scorpioides* Fabricius.
Arctic Sculpin.
Marine.
Arctic regions of America: recorded from coasts of Labrador and Greenland.
459. *Myoxocephalus scorpius* Linnaeus.
European Sculpin.
Marine.
Arctic regions: mentioned by Jones as being very common in Nova Scotia (1879, as *Cottus scorpius*): recorded from Labrador, from Gaspe Bay (Stafford, 1905-1906, as *Acanthocottus scorpius*, if such signifies this species), and from Eastport, Maine: occurs in northern seas of Europe and Asia, and on coasts of the British Islands.

*"Perhaps not distinct from *Cottus* [*Uranidea*] *gracilis*." Jordan and Evermann.

†"A doubtful species." Jordan and Evermann,

- 460. *Myoxocephalus grœnlandicus** Cuvier and Valenciennes.** (Plate XII, figures 140 and 141).
Daddy Sculpin.
Marine.
Ranges from Greenland, and embracing Labrador, doubtless Newfoundland, and the Maritime Provinces, southward to the State of New York.
- 461. *Myoxocephalus octodecimspinosus* Mitchill.** (Plate XII, figures 138 and 139).
Common Sculpin: Long-spined Sculpin.
Marine.
Atlantic coast of North America, ranging from Labrador to Virginia, and embracing the Gulf of St. Lawrence, Maritime Provinces, and New England States.
- 462. *Myoxocephalus polyacanthocephalus* Pallas.**
Great Sculpin.
Marine.
British Columbia and Puget Sound: extending northward to Alaska, Bering Sea, and Kamchatka.
- 463. *Dasycottus setiger* Bean.**
Marine.
North Pacific: specimens obtained at various stations of the United States *s.s.* *Albatross*, off Sitkalidak Island, and at localities north and south of the Alaskan Peninsula, and north of Unalaska Island; also recorded from Puget Sound: given here as it ought in all probability to occur in British Columbian waters.
- 464. *Oncocottus hexacornis*† Richardson.**
Long-horned Sculpin.
Marine, lacustrine, and at mouths of rivers.
Circumpolar: recorded from mouth of Tree River near Copper Mine River (Richardson, 1836, as *Cottus hexacornis*—the type): Hudson Bay region and coast of Labrador: New Brunswick (Cox, 1895, as *Cottus labradoricus*): Greenland: Point Barrow, Port Clarence, Herschel Island, and Bering Straits: Siberia, White Sea, Nova Zembla, Baltic Sea, England, and dwarfed in Ladoga and Onega Lakes.‡
- 465. *Trigloopsis thompsoni* Girard.**
Lake Sculpin: Deep-water Blop.
Lacustrine, and in tide pools.
Recorded from tide pools 75 miles north of York Factory, Hudson Bay region (Preble, 1900): previously known only from Lakes Ontario and Michigan.

*"According to Lütken the Greenland Sculpin (*grœnlandicus*) is not separated from *scorpius* by any character trenchant or constant." "Lilljiberg regards the 2 as identical a view not unlikely correct." Jordan and Evermann. "This form is considered in current ichthyological literature as a sub-species of *M. scorpius*. The differences are few but well marked and seem to be constant in such specimens as the writer has been able to examine." Kendall.

†*O. hexacornis*, *O. quadricornis*, and *O. labradoricus* provisionally treated here as one and the same species.

‡"These dwarf specimens may not be separable from *Trigloopsis* which genus is evidently derived from the lacustrine degradation of *Oncocottus*." Jordan and Evermann.

466. *Trigloporus ontariensis* Jordan and Thompson.
Lacustrine.
New species "founded on one specimen from off Toronto, Ontario" (Lambe, 1912).
467. *Gymnocranthus pistilliger* Pallas.
Marine.
Recorded from Hudson Bay:* and "collected at Niantilik Harbor, Cumberland Gulf":†
coasts of Alaska, westward through Bering Sea, to Petropaulski.
468. *Gymnocranthus tricuspid* Reinhardt.
Marine.
Arctic Seas, extending southward on the American side to coast of Labrador, and on the European side to coast of Norway.
469. *Oligocottus borealis* Jordan and Snyder.
Marine.
British Columbia and Puget Sound: ranging on the Pacific coast from Prince William Sound to Oregon.
470. *Blennicottus acuticeps* Gilbert.
Marine.
Ranges from Vancouver Island to Prince William Sound: also from tide pools at Unalaska
—4 type specimens.
471. *Blennicottus globiceps bryosus* Jordan and Starks.
Globe-headed Sculpin.
Marine.
British Columbia and Puget Sound, ranging northward to Kodiak.
472. *Blepsias cirrhosus* Pallas.
Prickled Sailor-fish.
Marine: in shallow water.
British Columbia and Puget Sound: ranging from coast of California northward to Alaska,
hence westward to Kamchatka.
473. *Nautichthys oculofasciatus* Girard.
Banded Sailor-fish.
Marine.
British Columbia and Puget Sound: ranging from coast of California northward to Kodiak Island.

*"This fish has been reported from the Atlantic side of North America, but it is probably a different species, as the mushroom-like filaments are not mentioned in their description. Sir John Richardson took a single specimen, a female 5 or 6 inches long, at Hudson Bay, which appears to be the same as these from Bering Sea." Seefield: quoted after Jordan and Evermann.

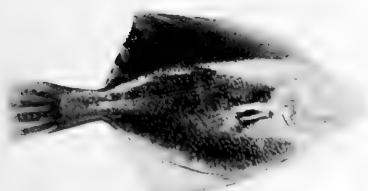
†A specimen from this locality is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. CCCI.

PLATE XIII.

150. *Platichthys stellatus* (Starry Flounder)
 (Specimen with the eyes on the right side of the head, the eyes of this species
 being often on the left side)
- 151-152. *Polistotrema stouti* (California Hagfish)
153. *Lepidopsetta bilineata* (Two-lined Flounder)
- 154-155. *Hydrolagus coliei* (Ratfish)
- 156-157. *Palometa simillimus* (California Pompano)
- 158-159. *Tæniotoca lateralis* (Striped Surf-fish)
- 160-161. *Damalichthys argyrosomus* (Porgy)
162. *Sebastodes paucispinis* (Jackfish)
- 163-164. *Sebastodes chrysomelas* (Black and Yellow Rockfish)
- 165-166. *Sebastodes nigrocinctus* (Black-banded Rockfish)
- 167-168. *Anoplopoma fimbria* (Coalfish or Skil)

PLATE XIII.

150. *Ichthyops stewarti* Stead, F. 1905.
(Specimen with the eyes on the right side of the head, the eyes of this species being often on the left side)
- 151-152. *Polistotrema stewarti* (California Hawkfish)
153. *Lepidopsetta bilineata* (Two-lined Flounder)
- 154-155. *Heterostichus colliei* (Hawfish)
- 156-157. *Palometa similis* (California Pompano)
- 158-159. *Thalassoma* (Hawfish)
- 160-161. *Damichthys* (Hawfish)
162. *Sebastes nigrifrons* (Blackfish)
- 163-164. *Sebastes chrysomelas* (Black and Yellow Rockfish)
- 165-166. *Sebastes nigricinctus* (Black-banded Rockfish)
- 167-168. *Aspidopoma* (Gobies)



150



151



152



153



154

♂



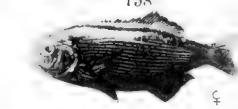
155

+



156

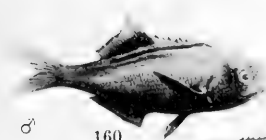
157



158

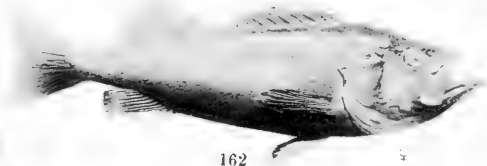
♀

159



♂

160



162

♀



161



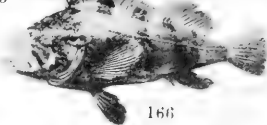
163



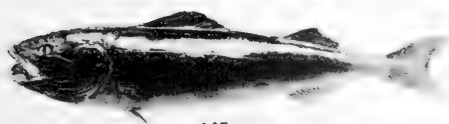
164



165



166



167



168

474. *Hemitripterus americanus* Gmelin. (Plate XII, figures 142 and 143).
Sea Raven.
Marine.
Atlantic coast of North America: Maritime Provinces, Gaspé Bay, Gulf of St. Lawrence, Labrador, and Newfoundland; extending southward to the coast of the State of New York.
475. *Hemitripterus cavifrons* Lockington.
Sea Raven.
Marine.
Ranges from British Columbia northward to coast of Alaska.
476. *Synchirus gilli* Bean.
Marine.
Barelay Sound, west coast of Vancouver Island.
477. *Ascelichthys rhodorus* Jordan and Gilbert.
Marine; abounding in rocky pools.
British Columbia: very abundant at the entrance to the Straits of Juan de Fuca; ranges on the Pacific coast from Mendocino to Alaska.
478. *Psychrolutes paradoxus* Günther.
Spineless Sculpin.
Marine.
British Columbia—the type from Gulf of Georgia (Günther, 1861); ranges from Puget Sound northward to coast of Alaska, including the Alaskan Peninsula; “thence westward through Unimak Pass, along the northern shore of Unalaska Island to the Kuril Islands, and the Pribilof Islands and in Bristol Bay” (Jordan and Evermann).
479. *Gilbertidia sigolutes* Jordan and Starks.
Marine.
British Columbia and Puget Sound.
480. *Rhamphocottus richardsoni* Günther.
Richardson's Sculpin.
Marine.
British Columbia and Puget Sound; ranges from coast of California to Alaska.
481. *Hypsagonus quadricornis* Cuvier and Valenciennes.
Marine.
British Columbia: ranges from Puget Sound northward to Alaska, Bering Sea, and Kamchatka.
482. *Pallasina barbata* Steindachner.
Marine.
British Columbia: extends from the Arctic Ocean through the Bering Sea and to the coast of Alaska southward to Oregon, and on the Asiatic side to Japan.
483. *Pallasina aix* Starks.
Marine.
Ranges from British Columbia and Puget Sound to the Aleutian Islands.

484. *Leptagonus decagonus* Bloch and Schneider.
Marine: in deep water.
Arctic Ocean, extending southward to coasts of Newfoundland and Norway.
485. *Podothecus acipenserinus* Tilesius.
Common Alligator-fish.
Marine.
British Columbia and Puget Sound, extending northward to Alaska, hence, including the Aleutian Islands, westward to Kamchatka.
486. *Agonus cataphractus* Linnaeus.
Sea Poacher: Pogge.
Marine.
Arctic Ocean: Davis Straits, at least on the western coast of Greenland: seas of northern Europe: also recorded from Great Britain, and from the coast of France.
487. *Averruncus emmelane* Jordan and Starks.
Dark-coloured Alligator-fish.
Marine.
Known from British Columbia and Puget Sound.
488. *Xystes axinophrys* Jordan and Starks.
Marine.
Known from British Columbia and Puget Sound.
489. *Bathyagonus nigripinnis* Gilbert.
Bathybial.
British Columbia: ranges from the coast of the State of Washington northward to the Aleutian Islands and Bering Sea.
490. *Xenochirus pentacanthus* Gilbert.
Marine: in deep water.
British Columbia: ranges from coast of California northward to Bering Sea.
491. *Odontopyxis trispinosus* Lockington.
Marine: in deep water.
British Columbia and Puget Sound southward to Santa Barbara, California: recorded from Alaska (Lockington, 1879).
492. *Bothragonus swanii* Steindachner.
Marine.
British Columbia and Puget Sound.
493. *Aspidophoroides olriki* Lütken.
Marine.
Arctic Ocean: Davis Straits, at least on the Greenland side: also recorded from the Kara Sea.*

*"The Dutch expedition took 15 specimens of this form in Barents Bay [Kara Sea] and probably confused it with *A. monopterygius*." Jordan and Evermann.

- 494. *Aspidophoroides monopterygius* Bloch.**
 Sea Poacher: Alligator Fish.
 Marine.
 Maritime Provinces, Gulf of St. Lawrence, and coast of Labrador: presumably Hudson Bay, and to the Arctic regions.
- 495. *Aspidophoroides inermis* Günther.**
 Marine.
 Ranges from Vancouver Island northward to coast of Alaska, including Bristol Bay and the eastern Aleutian Islands.
- 496. *Cyclopterus lumpus* Linnaeus.**
 Lump-fish: Lump-sucker.
 Marine: abounding on rocky shores.
 Both coasts of north Atlantic Ocean: on the American side ranging from Davis Straits, and embracing Labrador, Newfoundland, Gulf of St. Lawrence, Gaspé Bay, Maritime Provinces, and New England States, southward to Cape Cod: on the European side occurs at the British Islands, including the Orkney Islands and "all around the Irish coasts" (Yarrell, 1859); and coasts of Scandinavia and Baltic Sea southward to coast of France.
- 497. *Eumicrotremus spinosus* Müller.**
 Marine.
 North Atlantic and Arctic Ocean: coast of Labrador: recorded from Davis Straits (Dresel—a specimen from the stomach of a halibut): "trawled off Halifax Harbour by the 'Speedwell' Expedition, August, 1877" (Jones, 1879, as *Cyclopterus spinosus*): extends southward to Maine and Denmark.
- 498. *Eumicrotremus orbis* Günther.**
 Marine.
 North Pacific Ocean: ranges from Vancouver Island to Bering Sea.
- 499. *Neoliparis atlanticus* Jordan and Evermann.**
 Marine: among rocky shores.
 The type from Godbout, Province of Quebec (in the United States National Museum at Washington): ranges from Newfoundland, and perhaps Labrador (Gill, 1872, but queried by Kendall), southward to Cape Cod: "taken off Halifax Harbour by the 'Speedwell' Expedition, August, 1877" (Jones, 1879, as *Liparis montagui*)* and recorded as occurring in Gaspé Bay (Stafford, 1905-1906, also as *L. montagui*).
- 500. *Neoliparis floræ* Jordan and Starks.**
 Marine.
 British Columbia and Puget Sound southward to coast of California.

**Neoliparis atlanticus* has repeatedly been confounded with the European species *N. (Liparis) montagui*. "The published figures of *N. montagui* show a deeper fish with larger head and with the spinous dorsal very low, and scarcely distinct from the soft rays." Jordan and Evermann.

501. *Neoliparis greeni* Jordan and Starks.
Green's Sucker.
Marine.
Only the type* apparently known: from Esquimalt Harbour, near Victoria, Vancouver Island (in Leland Stanford Junior University Museum).
502. *Liparis liparis* Linnaeus.
Sea Snail.
Marine.
Both shores of North Atlantic: on the American side ranges from Davis Straits to Connecticut, and recorded from Labrador: abundant in northern Europe, ranging from Spitzbergen and Nova Zembla southward to France: "more common in the northern parts of the British Islands than in the southern"† (Yarrell, 1859).
503. *Liparis cyclopis* Günther.
Marine.
Recorded from Esquimalt Harbour, Vancouver Island (Günther, 1861): probably ranges from Puget Sound to Bering Sea.
504. *Liparis fucensis* Gilbert.
Marine.
Type specimens from Port Angeles, Straits of Juan de Fuca, State of Washington (Gilbert, 1893): given here as likely to occur in British Columbian waters: thought to have been found near San Francisco (Garman, 1892, as *L. calliodon*, and was if such is referable to the same species).‡
505. *Liparis tunicatus* Reinhardt.
Marine.
Recorded from coasts of Labrador and Greenland.
506. *Liparis herschelinus* Scofield.
Marine.
Arctic Ocean, having been recorded from Herschel Island, Beauford Sea, and should occur, presumably, elsewhere in the North West Passage.
507. *Liparis dennyi* Jordan and Starks.
Marine.
Ranges from Puget Sound northward, and recorded from near Unalaska: evidently occurs in British Columbian waters.

*This specimen is figured, in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. CCCXVI.

†"This species is found on the Berwickshire coast, and Dr. Parnell has obtained specimens in the Frith of Forth. Mr. Low says, 'The Sea Snail is found under stones at many places in Orkney; but in no place more frequently than that at the point of the Ness of Stromness, where they may be picked up by dozens.'" Yarrell.

‡"Mr. Garman identifies this species with the *calliodon* of Pallas, but according to Pallas his species had the gill opening reduced to a lunate spiracle which is not the case in *Liparis fucensis*." Jordan and Evermann.

- 508. *Liparis pulchellus* Ayres.**
Stone Sucker.
Marine.
British Columbia: ranges from coast of California to Alaska and Bering Sea.
- 509. *Bathyphasma ovigerum* Gilbert.**
Bathybial.
Off Queen Charlotte Islands, British Columbia—known apparently only from the type;*
obtained at 1,588 fathoms.
- 510. *Careproctus ranula* Goode and Bean.**
Marine.
Off Chebucto Head, Halifax Harbour, Nova Scotia—only specimen apparently known
(if distinct as a species from *C. reinhardi*)† obtained by the 'Speedwell' Expedition
in 52 fathoms (Jones, 1879, as *Liparis ranula*).
- 511. *Paraliparis cephalus* Gilbert.**
Bathybial.
British Columbia: ranges from coast of California to Alaska: recorded also from north of
Unalaska.
- 512. *Paraliparis ulochir* Gilbert.**
Bathybial.
Recorded from Gulf of California and Bering Sea: given here owing to its occurrence north
and south of British Columbia.
- 513. *Prionotus carolinus* Linnaeus.**
Common Gurnard.
Marine.
Ranges from Maine to South Carolina, perhaps from Maritime Provinces.
- 514. *Cephalacanthus volitans* Linnaeus.**
Flying Robin: Flying Gurnard.
Marine: rises out of the water, like the flying fishes, and moves in the air.
Occasional off the coast of the southern part of the Bay of Fundy: "found along our entire
coast [United States] south of Cape Cod, and in the waters of Brazil; also in the Medi-
terranean and in the neighbouring parts of the eastern Atlantic" (Goode, 1888); and
recorded from various localities in the West Indies, including Porto Rico on the
authority of Poey and Stahl (Evermann and Marsh, 1899).
- 515. *Porichthys notatus* Girard.**
Midshipman.
Marine: lives under stones.
British Columbia‡ and Puget Sound, ranging southward to Lower California.

*This specimen is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. CCCXVIII.

†"Garman refers this species to the synonymy of *Careproctus reinhardi* [a fish known from Greenland and neighbouring islands] which may be correct." Jordan and Evermann.

‡A specimen in the Provincial Museum, Victoria, given in the catalogue as *P. porosissimus* would seem to belong to this species—the recorded range of *P. porosissimus* being from South Carolina to Texas and Argentina.

- 516. *Caularchus mæandricus* Girard.**
Suck-fish: Cling-fish.
Marine: in rocky pools.
British Columbia southward to Point Concepcion.
- 517. *Heterostichus rostratus* Girard.**
Kelpfish.
Marine: abundant among kelp.
Reputed range coast of California: included here on the strength of a female mounted specimen* obtained in British Columbia by Mr. S. F. Denton, taxidermist, which seems to answer to this species.
- 518. *Bryostemma polyactcephalum* Pallas.**
Tufted Blenny.
Marine.
British Columbia and Puget Sound, ranging northward to Bering Sea, hence westward to Kamchatka, and, if the same, to the island of Hokkaido, Japan (Herzenstein, 1890, as *Chirolophus japonicus*).
- 519. *Bryostemma nugator* Jordan and Williams.**
Marine.
British Columbia and Puget Sound.
- 520. *Apodichthys flavidus* Girard.**
Yellow Blenny.
Marine: "usually found below low-tide mark."
British Columbia and Puget Sound southward to Santa Barbara Islands.
- 521. *Xerperes fucorum* Jordan and Gilbert.**
Marine: in rocky pools, and amongst sea weeds often out of the water.
British Columbia and Puget Sound southward to coast of California.
- 522. *Pholis gunnellus* Linnaeus.**
Gunnel: Butterfish.
Marine: abounding on rocky shores among sea-weeds.
Both sides of north Atlantic: ranging on the American side from Labrador, and embracing the Gulf of St. Lawrence, Gaspé Bay, doubtless Newfoundland, and Maritime Provinces, southward to Wood's Hole; and on the European side from the coast of Norway to France: occurs in Great Britain from the southern counties of England, including Cornwall, along the east coast, including Berwick Bay and the Frith of Forth, northward to the Orkney and Shetland Islands.

*Certain characters of this specimen are as follows:—Length with mouth protracted and open 18 inches: a single row of conical teeth with a series of villiform teeth behind them in each jaw: lateral line straight from top of operculum to beyond pectoral fin, thence straight to caudal fin: caudal fin furcate and separated from the dorsal and anal fins: dorsal fin terminating slightly in front of terminus of anal fin: first dorsal spine separated from the second—a rudimentary membrane near their base alone connecting them: soft portion of dorsal short and somewhat higher than spinous portion: a translucent spot behind the third spine, and numerous other spines in both dorsal and anal fins each with a translucent spot behind it: pectoral fin placed high, but distance from dorsal outline greater than from ventral outline: colour brownish and mottled with whitish markings.

523. *Pholis fasciatus* Bloch and Schneider.
Marine.
Ranges from the coast of Greenland westward to the Kuril Islands, embracing the Arctic Ocean and Bering Sea; its range indicating that it undoubtedly occurs in the waters of the North West Passage, and should therefore be considered indigenous to the Dominion.
524. *Pholis ornatus* Girard.
Ornamented Gunnel.
Marine: lives in shallow water.
British Columbia: ranging from coast of California northward to Bering Sea, hence westward to Kamchatka.
525. *Anoplarchus atropurpureus* Kittlitz.
Marine.
British Columbia; ranging from coast of California to coast of Alaska and Bering Sea.
526. *Xiphistes chirus* Jordan and Gilbert.
Marine.
British Columbia: ranges from coast of California northward to coast of Alaska.
527. *Xiphidion mucosum* Girard.
Slimy Eel Pout.
Marine: abounding among rocks and sea-weeds.
British Columbia: ranging from coast of California to coast of Alaska.
528. *Xiphidion rupestre* Jordan and Gilbert.
Rock Eel Pout.
Marine: living among rocks and sea-weeds.
Ranges from British Columbia to coast of California.
529. *Leptoclinus maculatus* Fries.
Langbarn.
Marine.
Arctic Ocean: occurs in Bering Sea and recorded from Unimak Pass and Bristol Bay; also occurs from Spitzbergen southward to the coasts of Norway and Sweden; possibly circumpolar, and if so should occur in the waters of the North West Passage; recorded from the "fishing banks off the coast" of Nova Scotia (Jones, 1879, as *L. aculeatus*).
530. *Lumpenus medius* Reinhardt.
Marine.
Probably circumpolar: ranging at least from Spitzbergen and the coast of Norway westward, and including Greenland, Bering Sea, and Kamchatka; and should therefore occur in the waters of the North West Passage.
531. *Lumpenus anguillaris* Pallas.
Snake Blenny.
Marine.
British Columbia: ranges from coast of California to Alaska, including the Aleutian Islands, and thence to Kamchatka.

- 532. *Lumpenus fabricii*** Cuvier and Valenciennes.
 Marine.
 Recorded from Gulf of St. Lawrence, Labrador (Schmitt, 1904), and Hudson Bay region (Preble, 1900); also from Greenland, Bering Sea, and Spitzbergen.
- 533. *Lumpenus lampetræformis*** Walbaum.
 Serpent Blenny.
 Marine.
 Both sides of north Atlantic and in the Arctic Ocean: recorded from Labrador, and extending southward to Cape Cod "if *L. serpentinus* is the same" (Jordan and Evermann); also recorded from Spitzbergen, Norway and Sweden, and Iceland under several synonyms.
- 534. *Stichæus punctatus*** Fabricius.
 Marine.
 Arctic Seas: ranging from Greenland westward to Siberia: on the Atlantic side extending southward to Hudson Bay, Labrador, Newfoundland, and Nova Scotia; and on the Pacific side to Bristol Bay and Prince of Wales Island, Alaska, close to the British Columbian border: in all probability extends southward to waters of British Columbia.
- 535. *Ulvaria subbifurcata*** Storer.
 Radiated Shanny.
 Marine.
 North Atlantic Ocean: Maritime Provinces, extending southward to Cape Cod.
- 536. *Eumesogrammus præcisus*** Krøyer.
 Marine.
 Coasts of Greenland: "a specimen was forwarded by Mr. Whiteaves from the vicinity of Anticosti to the Smithsonian Institution" (Jones, 1879, as *E. unimaculatus*).
- 537. *Delolepis virgatus*** Bean.
 Wrymouth.
 Marine.
 British Columbia and Puget Sound extending northward to southern Alaska.
- 538. *Cryptacanthodes maculatus*** Storer.
 Wrymouth: Ghost-fish.*
 Marine.
 Maritime Provinces and Gaspé Bay: ranging from coast of Labrador southward to Long Island Sound.
- 539. *Anarhichas latifrons*** Steenstrup and Hallgrímsson.
 Wolf-fish.
 Marine.
 Ranges from beyond the Arctic Circle southward on both sides of the Atlantic: on the American side to Banquereau: recorded from Canso,† Nova Scotia, and from the "fishing banks of the coast" of that Province (Jones, 1879).

*"The ghost-fish form (*inornatus*) occasionally seen, is doubtless an albino." Jordan and Evermann.

†"One very large specimen of the wolf-fish was taken on the trawl of the steamer *Active* in about 50 fathoms. I learned that not more than one or two specimens are secured in a season, so that it is not a common fish." Cornish.

540. *Anarhichas minor* Olafsen.
Wolf-fish.
Marine.
Ranges from beyond the Arctic Circle southward on both sides of the Atlantic: occasionally brought to Canso, Nova Scotia, by the fishermen:* "fishing banks off the coast" of Nova Scotia (Jones, 1879): occurs on the New England coast, Iceland, and Norway.
541. *Anarhichas lupus* Linnaeus. (Plate XII, figures 144 and 145).
Wolf-fish.
Marine.
Both sides of north Atlantic southward to Cape Cod and France: Maritime Provinces, Gulf of St. Lawrence, Gaspé Bay, Labrador, and without doubt Newfoundland: "off the coasts of Norfolk and Yorkshire, in Berwick Bay, in the Frith of Forth, and among the Orkneys, occasionally also on the eastern coast of Ireland, and it is well-known on the northern shores of Europe, and in Greenland and Iceland" (Yarrell, 1859).
542. *Anarhichas lepturus* Bean.
Alaska Wolf-fish.
Marine.
Ranges from Vancouver Island northward to coasts of Alaska, including the Aleutian Islands, thence westward, perhaps, to Kamchatka (Pallas, 1811, as *Anarrhichas orientalis*).
543. *Anarrhichthys ocellatus* Ayres.
Wolf Eel.
Marine.
British Columbia and Puget Sound southward to coast of California.
544. *Scytalina cerdale* Jordan and Gilbert.
Marine: burrowing among rocks or living in gravel or wet-shingle between or near tide marks.
Recorded from Waadda Island, near Cape Flattery, State of Washington, at the entrance to the Straits of Juan de Fuca: given here as likely to occur on the British Columbian side of the Straits.
545. *Zoarces anguillaris* Peck. (Plate XII, figures 146 and 147).
Eel Pout.
Marine.
Ranges from the coast of Labrador, embracing the Gulf of St. Lawrence and Maritime Provinces, and doubtless Newfoundland, southward to the coast of Delaware.
546. *Lycodopsis pacificus* Collett.
Pacific Eel Pout.
Marine.
British Columbia and Puget Sound southward to coast of California.

*"Occasional specimens differing from the two foregoing [*A. latifrons* and *A. lupus*] are occasionally brought in by the fishermen, and appear to belong to this species. Like *A. latifrons* this is usually regarded as a purely Arctic wolf-fish." Cornish.

547. *Lycodes vahlii* Reinhardt.
Marine.
"Fishing banks off the coast" of Nova Scotia (Jones, 1879): coast of Greenland, and presumably northern or Arctic seas of eastern North America.
548. *Lycodes zoarchus* Goode and Bean.
Bathybial.
Known apparently only from off the coast of Nova Scotia,* having been found at 130 and 190 fathoms.
549. *Lycodes reticulatus* Reinhardt.
Marine.
Recorded from Banquereau: both sides of north Atlantic: on the American side ranging from Greenland to Narrangansett Bay: abundant in northern Europe.
550. *Lycodes frigidus* Collett.
Bathybial.
"North Atlantic and Arctic Ocean, from Spitzbergen south to the New England coast" (Jordan and Evermann): probably occurs in waters of British North America.
551. *Lycodes terræ-novæ* Collett.
Bathybial.
Only the type apparently known—from Banks of Newfoundland—the specimen in the collection of the Prince of Monaco.
552. *Lycodalepis mucosus* Richardson.
Marine.
Arctic America: Cumberland Gulf and Northumberland Sound.
553. *Lycenchelys verrillii* Goode and Bean.
Marine.
"Fishing banks off the coast" of Nova Scotia (Jones, 1879, as *Lycodes verrillii*): "an old male, † collected by the U.S. Fish Commission, 27 miles southwest of Chebucto, Nova Scotia" (specimen in U.S. National Museum): off the coast of New England.
554. *Lycenchelys paxillus* Goode and Bean.
Bathybial.
Recorded from between La Have and Sable Island Banks, from off Newfoundland, and from Gulf Stream.
555. *Bothrocara mollis* Bean.
Bathybial.
The type from off Queen Charlotte Islands: also recorded from southern California, off Bogoslof Island, and from near Unalaska.

*The type specimen is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. CCCXLIX.

†This specimen is figured in Drs. Jordan and Evermann's 'Fishes of North and Middle America,' vol. IV, pl. CCCLI.

- 556. *Gymnelis viridis* Fabricius.**
Marine.
Arctic regions: ranging from Greenland westward to Bering Sea: extending on the Atlantic side of North America southward to Nova Scotia; and on the Pacific side to Unalaska and Bristol Bay.
- 557. *Gymnelis stigma* Lay and Bennett.**
Marine.
Arctic regions; ranging from Greenland to Bering Sea: Northumberland Sound (Richardson, 1854, as *G. viridis* variety *unimaculatus*): Kotzebue Sound (Lay and Bennett, 1839, as *Ophidium stigma*).
- 558. *Lycocara parrii** Ross.**
Marine.
Recorded from Baffin's Bay (Ross, 1826, as *Ophidium parrii*).
- 559. *Derepodichthys alepidotus* Gilbert.**
Bathybial.
Only the type apparently known—from off Queen Charlotte Islands.
- 560. *Trachypterus rex-salmonorum* Jordan and Gilbert.**
King-of-the-Salmon.
Marine.
Recorded from Straits of Juan de Fuca, and from off the coast of California.
- 561. *Lophius piscatorius* Linnaeus. (Plate XIV, figure 181).**
Angler: Fishing-frog: Monkfish.
Marine.
Both sides of north Atlantic: Maritime Provinces and Gaspe Bay: extending southward on the American side to the Barbado Islands: in the eastern hemisphere ranges from Norway to the Cape of Good Hope: "not rare on any part of the coasts of Great Britain and Ireland, and is particularly common in the Solent and in the harbours of Portsmouth and Southampton" (Yarrell, 1859).
- 562. *Ceratias holbolli* Krøyer.**
Sea Devil.
Bathybial.
Recorded from Nova Scotia and Greenland.

*"Very imperfectly known, no specimens having been obtained by any recent collector." Jordan and Evermann.

563. *Balistes carolinensis* Gmelin.

Trigger-fish.

Marine.

Recorded from Banquereau,* some 50 miles southeast of Canso, Nova Scotia: "a specimen taken at St. Margaret's Bay is in the Halifax Museum"† (Jones, 1879, as *B. caprisus*): "a fine adult specimen.....taken with a spear on 25th August, near shore, Halifax harbour.....Dartmouth," (Piers, 1910): "tropical parts of the Atlantic; occasional northward in the Gulf Stream; very common on our coast [United States], and in the Mediterranean, rarely north to England" (Jordan and Evermann); a specimen was obtained by Dr. Melville in the Bay of Galway in 1853, and is recorded in Thompson's Natural History of Ireland (Yarrell, 1859).

564. *Monacanthus hispidus* Linnaeus.

File-fish.

Marine.

"Occasional specimens are taken in shore waters [of Nova Scotia]—the Rev. John Ambrose kindly forwarded one to the author about twelve years ago which was secured at St. Margaret's Bay" (Jones, 1879, as *Stephanolepis setifer*): ordinarily ranges from the coast of Brazil and the West Indies, being abundant among the Florida Keys, northward to Cape Cod; and also occurs at Madeira and the Canary Islands.

565. *Chilomycterus schoepfi* Walbaum.

Common Burrfish.

Marine.

Specimen off Sambro near Halifax "in the summer of about 1896" (Piers): "Cape Cod to Florida; very abundant southward in shallow water; especially numerous on the coast of the Carolinas and Florida" (Jordan and Evermann).

566. *Mola mola* Linnaeus.

Sun-fish: Head-fish.

Pelagic.

Temperate and tropical seas; recorded from coast of Labrador (Schmitt, 1904): occasional on the coasts of the Maritime Provinces: "not uncommon at Canso and out on the Banks" (Cornish, 1901-1902) "a specimen five feet six inches in length taken in Halifax Harbour, October, 1873" (Jones, 1879, as *M. rotunda*): a specimen captured "about ten miles off Devil's Island, at the mouth of Halifax Harbour"—18th July, 1894, and another seen in Bedford Basin "about half a mile from shore"—14th August, 1895 (Piers, 1897): recorded from Gaspé Bay (Stafford, 1905-1906): "common northward to England, Cape Cod, and San Francisco" (Jordan and Evermann): mentioned by Günther (1850) and by Yarrell (1859—each as *Orthogoriscus mola*) as occurring also on the coast of Ireland, and by Yarrell in Scotland, including the Frith of Forth, and at the Channel Islands: occurs at the West Indies, and in the Mediterranean and Adriatic Sea.

*One specimen of this remarkable File-fish was brought in by the deep-sea fishermen, who stated that it was 'gaffed' on Banquereau Bank, about fifty miles southeast of Canso. It was seen near the surface swimming around a floating buoy. Its captors had never seen one before, and it may be added that while the members of the family are abundant in tropical seas they become very scarce in high latitudes." Cornish.

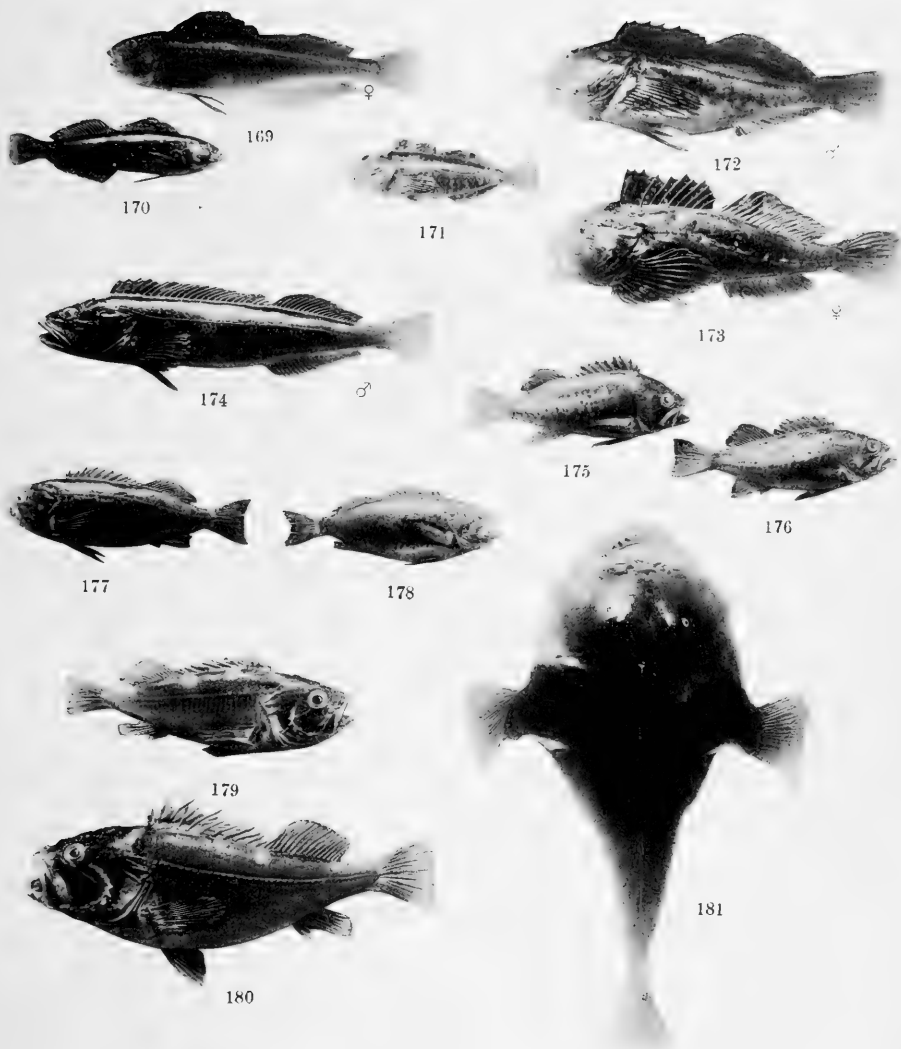
†So recorded, but Mr. Piers, Curator of the Museum, says:—"J. M. Jones in his 'List of the Fishes of Nova Scotia'.....mentions a specimen taken at St. Margaret's bay which was then in the Provincial Museum. I have not been able to recognize that specimen in our collections."

PLATE XIV.

- 169-170. *Hexagrammos decagrammus* (Boregat)
171. *Scorpænichthys marmoratus* (Cabezon-juvenile)
172-173. *Scorpænichthys marmoratus* (Cabezon)
174. *Ophiodon elongatus* (Cultus Cod)
175-176. *Sebastodes mystinus* (Black Rockfish or Priestfish)
177-178. *Sebastodes melanops* (Black Sea Bass)
179-180. *Sebastodes ruberrimus* (Red Rockfish or Tambor)
181. *Lophius piscatorius* (Angler, Fishing Frog, or Monkfish)

PLATE XIV.

171. *Geoponichthys marmoratus* (Capezon-Juvenile)
 172. *Geoponichthys marmoratus* (Capezon)
 173. *Ophiodon elongatus* (Cultus Cove)
 174-176. *Sebastes mystinus* (Black Rockfish or Tiesfish)
 177-178. *Sebastes inelanops* (Black Sea Bass)
 179-180. *Sebastes melanops* (Black Rockfish or Monkfish)
 181. *Ioplinus piscatorius* (Angler, Fishing Frog, or Monkfish)



ADDENDA.

Just as the check-list is going to press specimens of the following species have been received from Mr. S. F. Denton, taxidermist, which he claims to have obtained in British Columbia; and it is now too late to incorporate these species in their places in the list.

12a. *Scylliorhinus profundum* Goode and Bean.

Roussette.

Marine. Specimen from British Columbia as mentioned above: "one specimen -85648, U.S.N.M.—20½ inches, obtained by the Fish Commission steamer *Albatross* at a depth of 816 fathoms, in latitude 39° 9' N., longitude 72° 3' 15" W.—*Goode and Bean*" (Jordan and Evermann).

402a. *Sebastes goodei* Eigenmann and Eigenmann.

Marine. Specimen from British Columbia as mentioned above: reputed range coast of California: "the species is now taken in abundance about the Coronados Islands, Santa Catalina, and the Cortez Banks" (Jordan and Evermann).

411a. *Sebastes rastrelliger* Jordan and Gilbert.

Grass Rockfish.

Marine. Two specimens from British Columbia as mentioned above: reputed range coast of California.

GLOSSARY OF TECHNICAL TERMS

Anadromous.—Passing from the sea into fresh waters, as the salmon and certain other fishes do in order to spawn.

Bathybiol.—Living in depths: said of fishes and other creatures which inhabit the depths of the ocean.

Bayous.—Plural of bayou: a term employed to signify a channel proceeding from a lake or river. Bayou is from a French word, signifying a long narrow channel or gut. As applied to a channel proceeding from a river or lake it appears to be a United States term and is adopted here.

Brackish.—Salt water diluted with fresh water, as at the mouths of rivers and estuaries.

Catadromous.—Passing from fresh water into the sea, as the eel does to spawn.

Fluvialile.—Pertaining to rivers: inhabiting rivers.

Lacustrine.—Pertaining to lakes: inhabiting lakes.

Landlocked.—Inclosed or encompassed by land: a term employed in regard to certain varieties of marine fishes which live in lakes having no direct communication with the sea: for instance, the ouananiche.

Marine.—As a term employed in the check-list to denote such fishes as inhabit the sea without respect to the open sea or the depths.

Parasitic.—Dependence of an animal or plant upon another animal or plant for subsistence by living in or on it.

Pelagic.—Belonging to the ocean: inhabiting the open ocean.

The symbol of Mars, ♂, is the zoological mark for the male, that of Venus, ♀, for the female. [In the figures in the plates wherever the sexes are outwardly different, and in cases where the sexes are not outwardly different, but where sex was determined when the specimens were opened, males and females are distinguished by those symbols. In other instances it is impossible to indicate sex.]

INDEX TO TECHNICAL NAMES

	PAGE
<i>Abramis crysoleucus</i>	18, 62
<i>abyssiicola</i> , Raja.....	12, 43
<i>acanthias</i> , <i>Squalus</i>	12, 41
<i>Acanthopterygii</i>	25, 37
<i>Acipenser brevirostrum</i>	13, 44
" <i>medirostris</i>	13, 44
" <i>rubicundus</i>	13, 41
" <i>sturio</i> , <i>oxyrhynchus</i>	13, 44
" <i>transmontanus</i>	13, 44
<i>Acipenseridae</i>	13
<i>acipenserinus</i> , <i>Podotheicus</i>	33, 106
<i>Acipenseroides</i>	13
<i>Aerocheilus alutaceus</i>	18, 60
<i>aerolepis</i> , <i>Macrurus</i>	25, 81
<i>Aerotidae</i>	24
<i>Aerotus willoughbyi</i>	24, 77
<i>aeuleatus</i> , <i>Gastrosteus</i>	22, 73
<i>acuticeps</i> , <i>Blemmicottus</i>	33, 101
<i>adpersus</i> , <i>Tautoglabrus</i>	28, 89
<i>aglefinus</i> , <i>Melanogrammus</i>	24, 79
<i>aeneus</i> , <i>Myoxocephalus</i>	32, 102
<i>aenigmaticus</i> , <i>Teosteus</i>	24, 76
<i>aesulapius</i> , <i>Plagyodus</i>	21, 71
<i>aestivalis</i> , <i>Pomolobus</i>	14, 47
<i>affinis</i> , <i>Chimera</i>	13, 43
<i>aggregatus</i> , <i>Cymatogaster</i>	27, 88
<i>Agonidae</i>	33-34
<i>Agonus cataphractus</i>	33, 106
<i>Agosia falcata</i>	19, 65
" <i>nubila</i>	19, 65
" <i>umatilla</i>	19, 65
<i>aix</i> , <i>Pallasina</i>	33, 105
<i>alalunga</i> , <i>Germo</i>	28, 90
<i>alascanus</i> , <i>Sebastolobus</i>	30, 96
<i>Albatrossia pectoralis</i>	25, 81
<i>Albula vulpes</i>	14, 45
<i>Albulidae</i>	14
<i>alepidotus</i> , <i>Derepodichthys</i>	37, 115
<i>Alepocephalidae</i>	14
<i>aleuticus</i> , <i>Cottus</i>	32, 101
<i>alipes</i> , <i>Salvelinus alpinus</i>	15, 53
<i>Alopias vulpes</i>	12, 40
<i>Alopiidae</i>	12
<i>Alosa sapidissima</i>	14, 47
<i>alosoides</i> , <i>Hyodon</i>	14, 45
<i>alpinus alipes</i> , <i>Salvelinus</i>	15, 53
" <i>arecturus</i>	15, 54
" <i>stagnalis</i>	15, 54
<i>altivelis</i> , <i>Sebastolobus</i>	30, 96
<i>alutaceus</i> , <i>Aerocheilus</i>	18, 60
<i>alutus</i> , <i>Sebastodes</i>	31, 97
<i>Ambloplites rupestris</i>	25, 82

	PAGE
<i>amblops</i> , <i>Hybopsis</i>	19, 66
<i>Ameiurus lacustris</i>	17, 57
" <i>melas</i>	17, 57
" <i>natalis</i>	17, 57
" <i>nebulosus</i>	17, 57
" <i>vulgaris</i>	17, 57
<i>americana</i> , <i>Morone</i>	27, 87
<i>americanus</i> , <i>Ammodytes</i>	23, 75
" <i>Hemirhamphus</i>	33, 105
" <i>Pseudopleuronectes</i>	29, 94
<i>Amia calva</i>	13, 45
<i>Amiidae</i>	13
<i>Ammonocephala pulchella</i>	26, 85
<i>Ammodytes americanus</i>	23, 75
" <i>dubius</i>	23, 75
" <i>personatus</i>	23, 75
<i>Ammodytidae</i>	23
<i>Amphistichus argenteus</i>	27, 88
<i>Anacanthini</i>	24, 25
<i>Anarrhichadidae</i>	36
<i>Anarrhichas latifrons</i>	36, 112
" <i>lepturus</i>	36, 113
" <i>lupus</i>	36, 113
" <i>minor</i>	36, 113
<i>Anarrhichthys ocellatus</i>	36, 113
<i>Anguilla chrysops</i>	19, 67
<i>anguillaris</i> , <i>Lumpenus</i>	35, 111
" <i>Zoarces</i>	36, 113
<i>Anguillidae</i>	19
<i>anisurum</i> , <i>Moxostoma</i>	17, 59
<i>annularis</i> , <i>Pomoxis</i>	25, 81
<i>anomalum</i> , <i>Camptostoma</i>	18, 60
<i>Anoplocheilichthys atropurpureus</i>	35, 111
<i>Anoplopoma fimbria</i>	31, 98
<i>Anoplopomatidae</i>	31
<i>Antimora microlepis</i>	25, 79
" <i>viola</i>	25, 79
<i>Apeltes quadracus</i>	22, 73
<i>Aphredoderidae</i>	25
<i>Aphredoderus sayanus</i>	25, 81
<i>Aplodinotus grunniens</i>	27, 87
<i>Apodes</i>	19-20
<i>Apodichthys flavidus</i>	35, 110
<i>Apomotis cyanellus</i>	26, 82
<i>Archosargus probatocephalus</i>	27, 88
<i>arcticum</i> , <i>Benthosena</i>	21, 71
<i>Arctozenus borealis</i>	21, 71
<i>arecturus</i> , <i>Salvelinus alpinus</i>	15, 54
<i>argentea</i> , <i>Sphyræna</i>	23, 76
<i>argenteus</i> , <i>Amphistichus</i>	27, 88
<i>Argentina silus</i>	16, 56
<i>Argentiniidae</i>	15-16

	PAGE
argyritis, Hybognathus.....	18, 61
Argyropelecus olfersi.....	16, 56
Argyrosomus arctedi.....	15, 49
" hoeyi.....	15, 49
" lauretta.....	15, 50
" lucidus.....	15, 50
" nigripinnis.....	15, 50
" osmeriformis.....	15, 49
" prognathus.....	15, 50
" pusillus.....	15, 50
" tullibee.....	15, 50
argyrosomus, Damalichthys.....	27, 89
arctedi, Argyrosomus.....	15, 49
Arctediellus atlanticus.....	31, 99
Arctediellus asperulus.....	31, 99
" lateralis.....	31, 99
Ascelichthys rhodorus.....	33, 105
Asenichthys taylori.....	32, 100
asper, Cottus.....	32, 100
aspera, Limanda.....	29, 94
asperulus, Arctediellus.....	31, 99
Aspidophoroides inermis.....	34, 107
" monopterygius.....	34, 107
" olriki.....	34, 106
asprellus, Radulinus.....	32, 99
aspro, Hadropterus.....	26, 84
Asterozondyli.....	11, 12
Astrolites fenestralis.....	31, 99
Atheresthes stomias.....	29, 92
Atherinidae.....	23
atherinoides, Notropis.....	19, 64
Atherinopsis californiensis.....	23, 75
atkinsii, Gastrosteus.....	22, 73
atlanticus, Arctediellus.....	31, 99
" Benthodesmus.....	28, 90
" Neoliparis.....	31, 107
" Tarpon.....	13, 45
atromaculatus, Semotilus.....	18, 61
atronasus, Rhinichthys.....	19, 65
atropurpureus, Anoplarchus.....	35, 111
Aulorhynchidae.....	22
Aulorhynchus flavidus.....	22, 73
auratus, Carassius.....	19, 67
aurea, Lampetra.....	11, 39
aureolum, Moxostoma.....	17, 60
auriculatus dallii, Sebastodes.....	31, 97
auritus, Lepomis.....	26, 82
Averruncus emmelane.....	33, 106
avocetta, Nemichthys.....	19, 68
Avocettina infans.....	19, 68
axinophrys, Xystes.....	33, 106
Axyrias harringtoni.....	31, 99
badius, Fundulus heteroclitus.....	20, 69
bairdii, Gastrostomus.....	20, 68
" Mitchillina.....	14, 48
Balistes carolinensis.....	37, 116

	PAGE
Balistidae.....	37
balteatus, Leuciscus.....	18, 62
barbata, Pallasina.....	33, 105
Bathylagus pacificus.....	16, 56
Bathynna-steride.....	27
Bathypasma ovigerum.....	34, 109
Batrachoididae.....	35
beani, Triglops.....	32, 100
bendirei, Uranidea.....	32, 102
Benthodesmus atlanticus.....	28, 90
Benthodesma arcticum.....	21, 71
Beryciformes.....	25
bicornis, Icelus.....	32, 99
bilinearis, Merluccius.....	24, 77
bilineata, Lepidopsetta.....	29, 94
binoculata, Raja.....	12, 43
bison, Enophrys.....	32, 100
Blennicottus acuticeps.....	33, 104
" globiceps bryosus.....	33, 104
Blenniidae.....	35-36
blennius, Notropis.....	18, 63
Blepsias cirrhosus.....	33, 104
Boleichthys exilis.....	26, 86
" fusiformis.....	26, 86
Boleosoma nigrum.....	26, 85
" olmstedii.....	26, 85
boreale, Etheostoma.....	26, 85
borealis, Arctozonus.....	21, 71
" Oligocottus.....	33, 104
" Plygodus.....	21, 71
Boreogadus saida.....	24, 77
Bothragonus swanii.....	34, 106
Bothrocara mollis.....	36, 114
Brachystius frenatus.....	27, 88
brachypoda, Pygosteus pungitius.....	22, 72
Brama raii.....	29, 92
Bramidae.....	29
breviceps, Moxostoma.....	17, 60
brevirostrum, Acipenser.....	13, 44
brevispinis, Sebastodes.....	31, 97
Brevoortia tyrannus.....	14, 47
Brosme brosmie.....	25, 80
brosmie, Brosme.....	25, 80
brunneus, Catulus.....	11, 39
Bryostemma nugator.....	35, 110
" polyacteocephalum.....	35, 110
bryosus, Blennicottus globiceps.....	33, 104
bubalus, Ictiobus.....	17, 58
caeruleus, Clupanodon.....	14, 46
californiensis, Atherinopsis.....	23, 75
callarias, Gadus.....	24, 78
calva, Amia.....	13, 45
Campostoma anomalum.....	18, 60
canadense, Stizostedion.....	26, 84
caprodes, Percina.....	26, 84

	PAGE		PAGE
Carangidae	28	Chimæridæ.....	13
Caranx crysos.....	28, 92	chirus, Niphistes	35, 111
Carassius auratus	19, 67	Chitonotus pugetensis.....	31, 98
carcharias, Carcharodon.....	12, 40	Chondrostei	13
Carcharodon carcharias.....	12, 40	Chromomus erythrogaster.....	18, 61
Careproctus ranula.....	34, 109	chrysochloris, Pomolobus.....	14, 46
carolinensis, Balistes.....	37, 116	chrysonelas, Sebastes.....	31, 97
carolinus, Prionotus.....	31, 109	chrysopsis, Hyodon.....	14, 46
carpio, Cyprinus	19, 67	chrysops, Roceus.....	27, 86
Carpiodes thompsoni.....	17, 58	" Stenotomus.....	27, 88
" velifer.....	17, 58	chrysopa, Anguilla	19, 67
castaneum, Macrostoma.....	20, 70	chuss, Urophycis.....	25, 80
castaneus, Ichthyomyzon.....	11, 38	cibaria, Lampetra.....	11, 39
cataphractus, Agonus.....	33, 106	cimbrius, Eucelyopus.....	25, 80
" Gastrosteus.....	22, 73	cirrhosus, Blepsias.....	33, 104
cataractæ, Rhinichthys.....	19, 65	Citharichthys sordidus.....	30, 95
" dulcis, Rhinichthys.....	19, 65	clarkii, Salmo.....	15, 52
Catostomide	17, 58	Clevelandia ios.....	30, 95
Catostomus catostomus.....	17, 58	Cliola vigilax.....	18, 62
" commersonii	17, 59	Clupanodon ceruleus.....	14, 46
" griseus.....	17, 58	Clupea harengus.....	14, 46
" macrocheilus.....	17, 59	" pallasii.....	14, 46
" nigricans.....	17, 59	Clupeidæ.....	14
catostomus, Catostomus.....	17, 58	clupeiformis, Coregonus.....	14, 49
Catulus brunneus	11, 39	Clupeoidæ.....	13-14
Caularchus mæandricus.....	35, 110	cocoi, Rhinocoptelus.....	21, 70
caurinus, Mylocheilus	18, 61	cœlolepis, Centrocygnus.....	12, 41
" Sebastodes.....	31, 97	cœnosus, Pleuronichthys.....	29, 93
cavifrons, Hemitripterus.....	33, 105	cœruleum, Etheostoma.....	26, 85
cayuga, Notropis.....	18, 63	cognatus, Cottus.....	32, 101
Centarchide.....	25-26	collicii, Hydrolagus.....	13, 43
Centrolophidæ.....	24	Columbia transmontana.....	21, 71
Centrosyllium fabricii.....	12, 41	commersonii, Catostomus.....	17, 59
Centrosyrnus cœlolepis.....	12, 41	concolor, Ichthyomyzon.....	11, 38
centrura, Dasyatis.....	13, 43	conger, Leptocephalus.....	19, 67
cepedianum, Dorosoma.....	14, 46	copelandi putnami, Cottogaster.....	26, 84
Cephalacanthidæ.....	34	Coregonus clupeiformis.....	14, 49
Cephalacanthus volitans.....	34, 109	" coulterii.....	14, 48
cephalus, Paraliparis.....	34, 109	" kennicottii.....	14, 48
Ceratias holbolli.....	37, 115	" labradoricus.....	14, 49
Ceratiidæ	37	" nelsonii.....	14, 49
Ceratocopelus madeirensis.....	20, 70	" quadrilateralis.....	14, 48
cerdale, Seytalina.....	36, 113	" richardsonii.....	14, 48
Cetorhinidæ.....	12	" williamsoni.....	14, 48
Cetorhinus maximus.....	12, 41	corinus, Hexanchus.....	11, 39
Chænobryttus gulcusus.....	26, 82	cornubica, Lamna	12, 40
Chalinura filifera.....	25, 81	cornutus, Notropis.....	18, 64
" serrula.....	25, 81	corporalis, Semotilus.....	18, 61
Chauliodontidæ.....	16	Coryphænoides rupestris.....	25, 81
Chauliodus macouni.....	16, 56	Cottidæ.....	31-33
" sloanei.....	16, 56	Cottogaster cheneyi	26, 85
cheneyi, Cottogaster.....	26, 85	" copelandi putnami	26, 84
Chiasmodon niger.....	23, 76	" shumardi.....	26, 84
Chiasmodontidæ.....	23	Cottus aleuticus	32, 101
chilensis, Sarda.....	28, 90	" asper.....	32, 100
Chilomycterus schæpfi.....	37, 116	" cognatus	32, 101
Chimæra affinis.....	13, 43	" gulosus.....	32, 100

	PAGE		PAGE
<i>Cottus icталops</i>	32, 101	<i>dissimilis</i> , <i>Hybopsis</i>	19, 66
" <i>onychus</i>	32, 101	<i>dolomieu</i> , <i>Micropterus</i>	26, 83
" <i>philonips</i>	32, 102	<i>Dorosoma cepedianum</i>	14, 46
" <i>pollicaris</i>	32, 101	<i>Dorosomidae</i>	14
" <i>ricei</i>	32, 101	<i>dubius</i> , <i>Ammodytes</i>	23, 75
" <i>semiscaber</i>	32, 101	<i>ductor</i> , <i>Nauarates</i>	28, 91
" <i>spilotus</i>	32, 102	<i>dulcis</i> , <i>Rhinichthys cataractæ</i>	19, 65
<i>Conesius dissimilis</i>	19, 66	<i>duquesnii</i> , <i>Placopharynx</i>	18, 60
" <i>greeni</i>	19, 66		
" <i>plumbeus</i>	19, 66	<i>Echeneididae</i>	30
<i>coulterii</i> , <i>Coregonus</i>	14, 48	<i>Elasmobranchii</i>	11-13
<i>crenularis</i> , <i>Tarletonbeania</i>	21, 71	<i>elassodon</i> , <i>Hippoglossoides</i>	29, 93
<i>Cristivomer namaycush</i>	15, 53	<i>elongatus</i> , <i>Leuciscus</i>	18, 62
" <i>siscowet</i>	15, 53	" <i>Ophiodon</i>	31, 98
<i>crumenophthalmus</i> , <i>Trachurus</i>	28, 91	<i>Elopidae</i>	13
<i>Cryptacanthodes maculatus</i>	36, 112	<i>Embiotoca jacksoni</i>	27, 88
<i>Cryptacanthodidae</i>	36	<i>Embiotocidae</i>	27
<i>crystoleucas</i> , <i>Abramis</i>	18, 62	<i>emilie</i> , <i>Opsopoeodus</i>	18, 62
<i>erys</i> , <i>Carrax</i>	28, 92	<i>emmelane</i> , <i>Averrunceus</i>	33, 106
<i>euxieri</i> , <i>Gastrosteus</i>	22, 73	<i>Enchelyopus cimbrius</i>	25, 80
<i>cyaneilus</i> , <i>Apomotis</i>	26, 82	<i>Engraulididae</i>	14
<i>cyclolepis</i> , <i>Moseleya</i>	25, 80	<i>Engraulis mordax</i>	14, 48
<i>Cyclopteridae</i>	34	<i>Enophrys bison</i>	32, 100
<i>Cyclopterus lumpus</i>	34, 107	<i>ensis</i> , <i>Gaidropsarus</i>	25, 80
<i>cyclopus</i> , <i>Liparis</i>	31, 108	<i>Entosphenus tridentatus</i>	11, 39
<i>Cyclospodyli</i>	12	<i>Eopsetta jordani</i>	29, 93
<i>Cyclo-tonata</i>	11	<i>Eptatretidae</i>	11
<i>Cymatogaster aggregatus</i>	27, 88	<i>Eques lanceolatus</i>	27, 87
<i>cynoglossus</i> , <i>Glyptocephalus</i>	30, 95	<i>Erimyzon succetta oblongus</i>	17, 59
<i>Cynoscion nobilis</i>	27, 87	<i>erinacea</i> , <i>Raja</i>	12, 42
" <i>regalis</i>	27, 87	<i>erythrogaster</i> , <i>Chrosomus</i>	18, 61
<i>cyprinella</i> , <i>Ietiobus</i>	17, 58	<i>Escalor violaceus</i>	28, 90
<i>Cyprinidae</i>	18-19	<i>Etheostoma boreale</i>	26, 85
<i>Cyprinus carpio</i>	19, 67	" <i>ceruleum</i>	26, 85
<i>Cypselurus heterurus</i>	23, 75	" <i>flabellare</i>	26, 85
		" <i>iowæ</i>	26, 85
<i>Dalatidae</i>	12	<i>Eucalia inconstans</i>	22, 72
<i>dallii</i> , <i>Sebastodes auriculatus</i>	31, 97	" <i>pygmaea</i>	22, 72
<i>Damalichthys argyrosomus</i>	27, 89	<i>Eumegagrammus præcisus</i>	36, 112
<i>Dasyatidae</i>	13	<i>Eumicrotremus orbis</i>	34, 107
<i>Dasyatis centrura</i>	13, 43	" <i>spinous</i>	34, 107
<i>Dasyceotus setiger</i>	32, 103	<i>Eupomotis euryurus</i>	26, 83
<i>decagonus</i> , <i>Leptagonus</i>	33, 106	" <i>gibbosus</i>	26, 83
<i>decagrammus</i> , <i>Hexagrammos</i>	31, 98	<i>euryurus</i> , <i>Eupomotis</i>	26, 83
<i>Decapterus macarellus</i>	28, 91	<i>Eurypharyngidae</i>	20
<i>Delolepis virgatus</i>	36, 112	<i>Eventognathus</i>	17-19
<i>dennyi</i> , <i>Liparis</i>	31, 108	<i>exilis</i> , <i>Bolichthys</i>	26, 86
<i>dentex</i> , <i>Osmerus</i>	16, 55	" <i>Lyopsetta</i>	29, 93
<i>Derepodichthyidae</i>	37	<i>Exocoetidae</i>	23
<i>Derepodichthys alepidotus</i>	37, 115	<i>Exocoetus volitans</i>	23, 74
<i>diaphana</i> , <i>Sternoptyx</i>	16, 56	<i>Exoglossum maxillingua</i>	19, 66
<i>diaphanus</i> , <i>Fundulus</i>	20, 69	<i>Exonantes vinciguerræ</i>	23, 75
<i>Diaphus theta</i>	20, 70		
<i>Diodontidae</i>	37	<i>fabricii</i> , <i>Centroscyllium</i>	12, 41
<i>Diplospodyli</i>	11	" <i>lumpenus</i>	35, 112
<i>Discocephali</i>	30	<i>falcata</i> , <i>Agosia</i>	19, 65
<i>dissimilis</i> , <i>Conesius</i>	19, 66	<i>fasciatus</i> , <i>Pholis</i>	35, 111

	PAGE		PAGE
fenestralis, Astrolutes.....	31, 99	Glyptocephalus cynoglossus.....	30, 95
ferox, Plagyodus.....	21, 71	" zuchirus.....	30, 95
" Stomias.....	16, 56	Gobiesocidae.....	35
ferruginea, Limanda.....	29, 94	Gobiidae.....	30
filifera, Chalinura.....	25, 81	Gobiiformes.....	30
fimbria, Anoplopoma.....	31, 98	Gobius nicholsii.....	30, 95
Fistularia petimba.....	22, 71	goodei, Sebastodes.....	30, 117
" tabacaria.....	22, 73	gorbusha, Onchorhynchus.....	15, 51
Fistulariidae.....	22	gracilis, Platygobio.....	19, 66
flabellare, Etheostoma.....	26, 85	" Uranidea.....	32, 102
flavescens, Pera.....	26, 81	granulata, Raja.....	12, 43
flavidus, Apodichthys.....	35, 110	greeni, Couesius.....	19, 66
" Aulorhynchus.....	22, 73	" Neoliparis.....	34, 108
flavus, Noturus.....	17, 57	griseolineatum, Siphostoma.....	22, 74
flora, Neoliparis.....	31, 107	griseus, Catostomus.....	17, 58
fontinalis, Salvelinus.....	15, 53	grenlandicus, Myoxocephalus.....	32, 103
formosa, Uranidea.....	32, 102	grunniens, Aplocheilichthys.....	27, 87
franklini.....	32, 102	gulosus, Chanobryttus.....	26, 82
frenatus, Brachyistius.....	27, 88	" Cottus.....	32, 100
fretensis, Notropis.....	18, 63	gunnellus, Pholis.....	35, 110
frigidus, Lycodes.....	36, 111	guntheri, Hadropterus.....	26, 81
fucensis, Liparis.....	31, 108	" Lampanyctus.....	20, 70
" Theragra.....	21, 78	guttatus, Percopsis.....	21, 71
fucorum, Xeroperes.....	35, 110	Gymnelis stigma.....	36, 115
Fundulus diaphanus.....	20, 69	" viridis.....	36, 115
" heterolepis.....	20, 69	Gymnocanthus pistilliger.....	33, 104
" " badius.....	20, 69	" tricuspidatus.....	33, 104
" " macrolepidotus.....	20, 69	Gymnodontes.....	37
" " notatus.....	20, 69	Gymnosarda pelamis.....	28, 89
fureatus, Phanerodon.....	27, 88	gyrinus, Schilbeodes.....	17, 58
fuscum, Siphostoma.....	22, 74		
fusiformis, Boleichthys.....	26, 86	Hadropterus aspro.....	26, 81
fyllo, Raja.....	12, 42	" guntheri.....	26, 81
		Haplomi.....	20 21
Gadidae.....	21-25	harengus, Clupea.....	14, 46
Gadus callarias.....	24, 78	harringtoni, Axyrias.....	31, 99
" macrocephalus.....	24, 78	Hemibranchii.....	22
" ogac.....	24, 78	Hemilepidotus hemilepidotus.....	32, 100
Gaidropsarus ensis.....	25, 80	hemilepidotus, Hemilepidotus.....	32, 100
Galeidae.....	12	Hemitripterus americanus.....	33, 105
Galeorhinus zyopterus.....	12, 40	" cavifrons.....	33, 105
Gastrosteidae.....	22	hersehelimus, Liparis.....	34, 108
Gastrosteus aculeatus.....	22, 73	heterolepis, Fundulus.....	20, 69
" atkinsii.....	22, 73	" badius, Fundulus.....	20, 69
" cataphractus.....	22, 73	" macrolepidotus, Fundulus.....	20, 69
" cuvieri.....	22, 73	heterodon, Notropis.....	18, 63
" williamsoni microcephalus.....	22, 73	Heteromi.....	21
Gastrostomus bairdii.....	20, 68	Heterostichus rostratus.....	35, 110
gemmifer, Lampanyctus.....	20, 70	heterurus, Cypselurus.....	23, 75
Gempylidae.....	28	hexacornis, Oncoecottus.....	32, 103
Gerno alalunga.....	28, 90	Hexagrammidae.....	31
gibbosus, Eupomotis.....	26, 83	Hexagrammos decagrammus.....	31, 98
Gilbertidia sigolutes.....	33, 105	" stelleri.....	31, 98
gilli, Synchirus.....	33, 105	" superciliatus.....	31, 98
gladius, Xiphias.....	28, 91	Hexanchidae.....	11
glauca, Prionace.....	12, 40	Hexanchus corinus.....	11, 39
globeiceps bryosus, Blennicottus.....	33, 104	Hippocampus hud-onius.....	22, 74

	PAGE		PAGE
Hippoglossoides classodon.....	29, 93	Jordania zonope.....	31, 98
" platessoides.....	29, 93	Jugulares.....	35-37
hippoglossoides, Reinhardtius.....	29, 92		
Hippoglossus hippoglossus.....	29, 93	kamloops, Salmo rivularis.....	15, 52
hippoglossus, Hippoglossus.....	29, 93	kennerlyi, Oncorhynchus.....	15, 51
hispidus, Monacanthus.....	37, 116	kennicotti, Coregonus.....	14, 48
holbølli, Ceratias.....	37, 115	keta, Oncorhynchus.....	15, 51
Holocephali.....	13	kisutch ".....	15, 51
Holosteii.....	13		
holotrachys, Macrurus.....	25, 81	Labidesthes sicculus.....	23, 75
hoyi, Argyrosomus.....	15, 49	labradoricus, Coregonus.....	14, 49
hudsonius, Hippocampus.....	22, 74	Labridae.....	28
" Notropis.....	18, 64	lacustris, Ameiurus.....	17, 57
" sclene, Notropis.....	18, 64	lavis, Raja.....	12, 42
humilis, Lepomis.....	26, 82	Lamna cornubica.....	12, 40
Hybognathus argyritis.....	18, 61	Lamnidae.....	12
" nuchalis.....	18, 61	Lampanyctus gemmifer.....	20, 70
Hybopsis amblops.....	19, 66	" Güntheri.....	20, 70
" dissimilis.....	19, 66	Lampetra aurea.....	11, 39
" storerianus.....	19, 66	" cibaria.....	11, 39
Hydrolagus collicii.....	13, 43	" wilderi.....	11, 39
Hydon alosoides.....	14, 45	lampetraformis, Lumpenus.....	35, 112
" chrysopsis.....	14, 46	Lamprididae.....	22
" tergicus.....	14, 46	Lampris luna.....	22, 72
Hyodontidae.....	14	lanceolatus, Eques.....	27, 87
Hypsogonus quadricornis.....	33, 105	lateralis, Arctidius.....	31, 99
		" Taniotoca.....	27, 88
Icelinus strabo.....	31, 99	latifrons, Anarhichas.....	36, 112
Icelus bicornis.....	32, 99	latipinnis, Zaniolepis.....	31, 98
Ichthyomyzon castaneus.....	11, 38	laurette, Argyrosomus.....	15, 50
" concolor.....	11, 38	Lepidogobius lepidus.....	30, 95
Icosteidae.....	24	Lepidopidae.....	28
Icosteus ænigmaticus.....	24, 76	Lepidopsetta bilineata.....	29, 94
ictalops, Cottus.....	32, 101	Lepidosteidae.....	13
Ictalurus punctatus.....	17, 56	Lepidosteus osseus.....	13, 45
Ietiobus bubalus.....	17, 58	" platostomus.....	13, 45
" cyprinella.....	17, 58	lepidus, Lepidogobius.....	30, 95
inconstans, Eucalia.....	22, 72	Lepomis auritus.....	26, 82
" pygmaea, Eucalia.....	22, 72	" humilis.....	26, 82
inermis, Aspidophoroides.....	34, 107	" megalotis.....	26, 82
infans, Avocettina.....	19, 68	" pallidus.....	26, 83
Inopsetta ischyra.....	29, 94	Leptagonus decagonus.....	33, 106
introniger, Sebastodes.....	31, 97	Leptocephalidae.....	19
ios, Clevelandia.....	30, 95	Leptocephalus conger.....	19, 67
iowae, Etheostoma.....	26, 85	Leptoclinus maculatus.....	35, 111
irideus, Salmo.....	15, 52	lepturus, Anarhichas.....	36, 113
ischyra, Inopsetta.....	29, 94	lesueuri, Moxostoma.....	17, 60
isolepis, Isopsetta.....	29, 94	Leuciscus balticus.....	18, 62
Isopsetta isolepis.....	29, 94	" elongatus.....	18, 62
		" nachtriebi.....	18, 62
jacksoni, Embiotoca.....	27, 88	" neogaeus.....	18, 62
japonicus, Scomber.....	28, 89	levenensis, Salmo trutta.....	15, 53
jejunus, Notropis.....	18, 64	Limanda aspera.....	29, 94
jordani, Eopsetta.....	29, 93	" ferruginea.....	29, 94
" Notropis.....	18, 63	limi, Umbra.....	20, 69
" Pantosteus.....	17, 58	limosa, Myxine.....	11, 38
" Ronquilus.....	27, 87	lineatus, Roccus.....	27, 86

	PAGE
<i>Liopsetta putnami</i>	29, 91
<i>Liparididae</i>	34
<i>Liparis cyclopus</i>	34, 108
" <i>dennyi</i>	34, 108
" <i>fuensis</i>	34, 108
" <i>herchelini</i>	34, 108
" <i>liparis</i>	34, 108
" <i>pulchellus</i>	34, 109
" <i>tunicatus</i>	34, 108
<i>liparis</i> , <i>Liparis</i>	34, 108
<i>Lophiidae</i>	37
<i>Lophius piscatorius</i>	37, 115
<i>Lophobranchii</i>	22
<i>Lophopsetta maculata</i>	30, 95
<i>Lota maculosa</i>	25, 79
<i>lucidus</i> , <i>Argyrosomus</i>	15, 50
<i>Lucidae</i>	20
<i>Lucius lucius</i>	20, 69
" <i>masquinongy</i>	20, 69
" <i>reticulatus</i>	20, 68
<i>lucius</i> , <i>Lucius</i>	20, 69
<i>Lumpenus anguillaris</i>	35, 111
" <i>fabrii</i>	35, 112
" <i>lampetraformis</i>	35, 112
" <i>medius</i>	35, 111
<i>lumpus</i> , <i>Cyclopterus</i>	34, 107
<i>luna</i> , <i>Lampris</i>	22, 72
<i>lupus</i> , <i>Anarhichas</i>	36, 113
<i>Lyceenchelys paxillus</i>	36, 114
" <i>verillii</i>	36, 114
<i>Lyceocara parrii</i>	36, 115
<i>Lycodelepis mucosus</i>	36, 114
<i>Lyodes frigidus</i>	36, 114
" <i>reticulatus</i>	36, 114
" <i>terre-novae</i>	36, 114
" <i>vahllei</i>	36, 114
" <i>zoarchus</i>	36, 114
<i>Lyceodopsis pacificus</i>	36, 113
<i>Lyopsetta ocellis</i>	29, 93
<i>macarellus</i> , <i>Decapterus</i>	28, 91
<i>Macdonaldia rostrata</i>	21, 72
<i>macellus</i> , <i>Prionistius</i>	32, 100
<i>mackenzii</i> , <i>Stenodus</i>	15, 50
<i>maeouni</i> , <i>Chauliodus</i>	16, 56
<i>macrocephalus</i> , <i>Gadus</i>	21, 78
<i>macrochilus</i> , <i>Catostomus</i>	17, 59
<i>macrolepidotum</i> , <i>Moxostoma</i>	17, 60
<i>macrolepidotus</i> , <i>Fundulus heteroclitus</i>	20, 69
<i>Macrostoma castaneum</i>	20, 70
" <i>margaritifera</i>	20, 70
" <i>quercinum</i>	20, 70
<i>Maeruridae</i>	25
<i>Macrurus acrolepis</i>	25, 81
" <i>holotrachys</i>	25, 81
<i>maculata</i> , <i>Lophopsetta</i>	30, 95
<i>maculatus</i> , <i>Cryptacanthodes</i>	36, 112

	PAGE
<i>maculatus</i> , <i>Leptocephalus</i>	35, 111
" <i>Notorhynchus</i>	11, 39
<i>maculosa</i> , <i>Lota</i>	25, 79
<i>madeirensis</i> , <i>Ceratocephalus</i>	20, 70
<i>maeandricus</i> , <i>Caularchus</i>	35, 110
<i>Malacoosteidae</i>	16
<i>Malacoosteus niger</i>	16, 56
<i>Malacopterygii</i>	13-16
<i>maliger</i> , <i>Sebastodes</i>	31, 97
<i>Mallotus villosus</i>	15, 55
<i>margaritifera</i> , <i>Macrostoma</i>	20, 70
<i>marinus</i> , <i>Petromyzon</i>	11, 38
" <i>Sebastes</i>	30, 96
" <i>unicolor</i> , <i>Petromyzon</i>	11, 38
<i>marmoratus</i> , <i>Scorpenichthys</i>	31, 98
<i>marstoni</i> , <i>Salvelinus</i>	15, 54
<i>masquinongy</i> , <i>Lucius</i>	20, 69
<i>maxillingua</i> , <i>Exoglossum</i>	19, 66
<i>maximus</i> , <i>Cetorhinus</i>	12, 41
<i>meanyi</i> , <i>Ruscarius</i>	32, 99
<i>medioeris</i> , <i>Pomolobus</i>	14, 47
<i>medirostris</i> , <i>Acipenser</i>	13, 44
<i>medius</i> , <i>Lumpenus</i>	35, 111
<i>megalogis</i> , <i>Lepomis</i>	26, 82
<i>Melanogrammus aeglefinus</i>	24, 79
<i>melanops</i> , <i>Minytrema</i>	17, 59
" <i>Sebastodes</i>	30, 96
<i>melanostictus</i> , <i>Psettichthys</i>	29, 93
<i>melas</i> , <i>Ameiurus</i>	17, 57
<i>Menidia menidia notata</i>	23, 75
<i>menidia notata</i> , <i>Menidia</i>	23, 75
<i>Merlucciidae</i>	24
<i>Merluccius bilinearis</i>	24, 77
" <i>productus</i>	24, 77
<i>Mesopus pretiosus</i>	16, 55
<i>microcephalus</i> , <i>Gastrosteus williamsoni</i>	22, 73
" <i>Somniosus</i>	12, 41
<i>Microgadus proximus</i>	24, 78
" <i>tomcod</i>	24, 78
<i>microlepis</i> , <i>Antimora</i>	25, 79
<i>Microperca punctulata</i>	26, 86
<i>Micropterus dolomieu</i>	26, 83
" <i>salmoides</i>	26, 83
<i>Microstomidae</i>	16
<i>Microstomus pacificus</i>	30, 95
<i>minor</i> , <i>Anarhichas</i>	36, 113
<i>Minytrema melanops</i>	17, 59
<i>Mitchillina bairdii</i>	14, 48
<i>Mola mola</i>	37, 116
<i>mola</i> , <i>Mola</i>	37, 116
<i>Molidae</i>	37
<i>mollis</i> , <i>Bothrocara</i>	36, 114
<i>Molva molva</i>	25, 79
<i>molva</i> , <i>Molva</i>	25, 79
<i>Monacanthidae</i>	37
<i>Monacanthus hispidus</i>	37, 116
<i>monopterygius</i> , <i>Aspidophoroides</i>	34, 107

	PAGE		PAGE
montanus, <i>Thymallus tricolor</i>	15, 55	nobilis, <i>Cynoscion</i>	27, 87
mordax, <i>Engraulis</i>	14, 48	Notacanthidae.....	21
" <i>Osmorus</i>	16, 55	Notacanthus phasganorus.....	21, 72
Morone americana.....	27, 87	notata, <i>Menidia menidia</i>	23, 75
Moseleya cyclolepis.....	25, 80	notatus, <i>Fundulus</i>	20, 69
Moxostoma anisurum.....	17, 59	" <i>Pimephales</i>	18, 61
" aureolum.....	17, 60	" <i>Porichthys</i>	35, 109
" breviceps.....	17, 60	Notorhynchus maculatus.....	11, 39
" lesueuri.....	17, 60	Notropis atherinoides.....	19, 64
" macrolepidotum.....	17, 60	" blennius.....	18, 63
mucosum, <i>Xiphidion</i>	35, 111	" cayuga.....	18, 63
mucosus, <i>Lycodalepis</i>	36, 114	" cornutus.....	18, 64
muskoka, <i>Notropis</i>	18, 63	" fretensis.....	18, 63
Myctophidae.....	20-21	" heterodon.....	18, 63
Myctophum punctatum.....	21, 70	" hudsonius.....	18, 64
Mylocheilus caurinus.....	18, 61	" " <i>scelene</i>	18, 64
Myoxocephalus aeneus.....	32, 102	" jejunus.....	18, 64
" " <i>grœnlandicus</i>	32, 103	" jordani.....	18, 63
" " <i>octodecimspinosus</i>	32, 103	" muskoka.....	18, 63
" " <i>polyacanthocephalus</i>	32, 103	" rubrifrons.....	19, 64
" " <i>scorpioides</i>	32, 102	" scopier.....	18, 64
" " <i>scorpius</i>	32, 102	" scylla.....	18, 63
mystinus, <i>Sebastes</i>	31, 96	" umbratilis.....	19, 65
Myxine limosa.....	11, 38	" volucellus.....	18, 63
Myxinidae.....	11	" whiplii.....	18, 64
Myxinoides.....	11	Noturus flavus.....	17, 57
nachtriebi, <i>Leuciscus</i>	18, 62	nubila, <i>Agosia</i>	19, 65
namaycush, <i>Cristivomer</i>	15, 53	nuchalis, <i>Hybognathus</i>	18, 61
" " <i>siscowet, Cristivomer</i>	15, 53	nugator, <i>Bryostemma</i>	35, 110
Nannobranchium nannochir.....	20, 70	oblongus, <i>Erimyzon sucetta</i>	17, 59
nannochir, <i>Nannobranchium</i>	20, 70	ocellata, <i>Raja</i>	12, 42
naresi, <i>Salvelinus equassa</i>	15, 54	ocellatus, <i>Anarrhichthys</i>	36, 113
natalis, <i>Ameiurus</i>	17, 57	octodecimspinosus, <i>Myoxocephalus</i>	32, 103
Nauarates ductor.....	28, 91	oculofasciatus, <i>Nautichthys</i>	33, 104
Nautichthys oculofasciatus.....	33, 104	Odontopyxis trispinosus.....	33, 106
nebulosus, <i>Ameiurus</i>	17, 57	ogac, <i>Gadus</i>	24, 78
" <i>Sebastes</i>	31, 97	olfersi, <i>Argyropelecus</i>	16, 56
nelsonii, <i>Coregonus</i>	14, 49	Oligocottus borealis.....	33, 104
Nematognath.....	17	olmstedii, <i>Boleosoma nigrum</i>	26, 85
Nemichthyidae.....	19	olriki, <i>Aspidophoroides</i>	34, 106
Nemichthys avocetta.....	19, 68	Oncocottus hexacornis.....	32, 103
" " <i>scelopaceus</i>	19, 68	Oneorhynchus gorbusha.....	15, 51
neogaeus, <i>Leuciscus</i>	18, 62	" " <i>kennerlyi</i>	15, 51
Neoliparis atlanticus.....	34, 107	" " <i>keta</i>	15, 51
" " <i>floræ</i>	34, 107	" " <i>kisutch</i>	15, 51
" " <i>greeni</i>	34, 108	" " <i>nerka</i>	15, 51
nerka, <i>Oncorhynchus</i>	15, 51	" " <i>tschawytscha</i>	15, 51
nicholsii, <i>Gobius</i>	30, 95	onitis, <i>Tautoga</i>	28, 89
niger, <i>Chiasmodon</i>	23, 76	ontariensis, <i>Trigloporus</i>	32, 104
" <i>Malacosteus</i>	16, 56	onychus, <i>Cottus</i>	32, 101
nigricans, <i>Catostomus</i>	17, 59	Ophiodon elongatus.....	31, 98
nigripinnis, <i>Argyrosomus</i>	15, 50	Opsopodus emiliae.....	18, 62
" " <i>Bathygonus</i>	33, 106	equassa, <i>Salvelinus</i>	15, 54
nigrocinctus, <i>Sebastes</i>	31, 97	orbis, <i>Eumicrotremus</i>	34, 107
nigrum, <i>Boleosoma</i>	26, 85	oregonensis, <i>Ptychocheilus</i>	18, 62
" " <i>olmstedii, Boleosoma</i>	26, 85	ornatus, <i>Pholis</i>	35, 111

	PAGE
osmeriformis, <i>Argyrosomus</i>	15, 49
<i>Osmerus dentex</i>	16, 55
" <i>mordax</i>	16, 55
" <i>thaleichthys</i>	16, 55
osseus, <i>Lepidosteus</i>	13, 45
Ostariophysii.....	16-19
ouananiehe, <i>Salmo salar</i>	15, 52
ovigerum, <i>Bathyphasma</i>	34, 109
<i>Oxylebius pictus</i>	31, 98
oxyrhynchus, <i>Acipenser sturio</i>	13, 44
<i>pacificus</i> , <i>Bathylagus</i>	16, 56
" <i>Lycodopsis</i>	36, 113
" <i>Microstomus</i>	30, 95
" <i>Thaleichthys</i>	16, 55
<i>Palinurichthys perciformis</i>	24, 76
<i>pallasii</i> , <i>Clupea</i>	14, 46
<i>Pallasia aix</i>	33, 105
" <i>barbata</i>	33, 105
<i>pallidus</i> , <i>Lepomis</i>	26, 83
<i>Palometa similis</i>	24, 76
<i>Pantosteus jordani</i>	17, 58
<i>paradoxus</i> , <i>Psychrolutes</i>	33, 105
<i>Paralepididae</i>	21
<i>Paraliparis cephalus</i>	34, 109
" <i>ulochir</i>	34, 109
<i>parasiticus</i> , <i>Simenchelys</i>	19, 67
<i>parkei</i> , <i>Salvelinus</i>	15, 53
<i>Parophrys vetulus</i>	29, 93
<i>parrii</i> , <i>Fistularia</i>	36, 115
<i>paucispinis</i> , <i>Sebastes</i>	30, 96
<i>paxillus</i> , <i>Lycenchelys</i>	36, 114
<i>pectinatus</i> , <i>Pristis</i>	12, 42
<i>pectoralis</i> , <i>Albatrossia</i>	25, 81
<i>Pediculati</i>	37
<i>pelamis</i> , <i>Gymnosarda</i>	28, 89
<i>pellucida</i> , <i>Ammocrypta</i>	26, 85
<i>pentacanthus</i> , <i>Xenochirus</i>	33, 106
<i>Perca flavescens</i>	26, 84
<i>Peresoces</i>	22-24
<i>Percidae</i>	26
<i>Perciformes</i>	25-28
<i>perciformis</i> , <i>Palinurichthys</i>	24, 76
<i>Percina caprodes</i>	26, 84
<i>Pereopsidae</i>	21
<i>Percopsis guttatus</i>	21, 71
<i>personatus</i> , <i>Ammodytes</i>	23, 75
<i>petimba</i> , <i>Fistularia</i>	22, 74
<i>Petromyzon marinus</i>	11, 38
" " <i>unicolor</i>	11, 38
<i>Petromyzonidae</i>	11
<i>Petromyzontes</i>	11
<i>Phanerodon furcatus</i>	27, 88
<i>phasganorus</i> , <i>Notacanthus</i>	21, 72
<i>philonips</i> , <i>Cottus</i>	32, 102
<i>Pholis fasciatus</i>	35, 111
" <i>gunnellus</i>	35, 110

	PAGE
<i>Pholis ornatus</i>	35, 111
<i>pictus</i> , <i>Oxylebius</i>	31, 98
<i>Pimphales notatus</i>	18, 61
" <i>promelas</i>	18, 61
<i>pingeli</i> , <i>Triglops</i>	32, 100
<i>pinnatus</i> , <i>Synaphobranchus</i>	20, 68
<i>pinniger</i> , <i>Sebastes</i>	31, 97
<i>piscatorius</i> , <i>Lophius</i>	37, 115
<i>Pisces</i>	11-37
<i>pistilliger</i> , <i>Gymnocanthus</i>	33, 104
<i>Placopharynx duquesnii</i>	18, 60
<i>Plagiosomi</i>	11-13
<i>Plagyodontidae</i>	21
<i>Plagyodus aequalis</i>	21, 71
" <i>borealis</i>	21, 71
" <i>ferox</i>	21, 71
<i>platessoides</i> , <i>Hippoglossoides</i>	29, 93
<i>Platichthys stellatus</i>	29, 94
<i>platostomus</i> , <i>Lepidosteus</i>	13, 45
<i>Platygobio gracilis</i>	19, 66
<i>Plectognathi</i>	37
<i>Pleuronectidae</i>	29-30
<i>Pleuronichthys cenosus</i>	29, 93
<i>plumbeus</i> , <i>Couesius</i>	19, 66
<i>Podothecus acipenserinus</i>	33, 106
<i>Poeciliidae</i>	20
<i>Polistotrema stouti</i>	11, 38
<i>Pollachius virens</i>	24, 77
<i>pollicaris</i> , <i>Cottus</i>	32, 101
<i>polyacanthocephalus</i> , <i>Myoxocephalus</i>	32, 103
<i>polyactiocephalum</i> , <i>Bryostemma</i>	35, 110
<i>Polyodon spathula</i>	13, 44
<i>Polyodontidae</i>	13
<i>Pomatidae</i>	29
<i>Pomatomus saltatrix</i>	29, 92
<i>Pomolobus salivialis</i>	14, 47
" <i>chrysochloris</i>	14, 46
" <i>mediocris</i>	14, 47
" <i>pseudoharengus</i>	14, 47
<i>Pomoxis annularis</i>	25, 81
" <i>sparoides</i>	25, 81
<i>Porichthys notatus</i>	35, 109
<i>Poronotus triacanthus</i>	21, 76
<i>praecisus</i> , <i>Eumesogrammus</i>	36, 112
<i>pretiosus</i> , <i>Mesopus</i>	16, 55
<i>Prionace glauca</i>	12, 40
<i>Prionotus macellus</i>	32, 100
<i>Prionotus carolinus</i>	34, 109
<i>Pristidae</i>	12
<i>Pristis pectinatus</i>	12, 42
<i>probatocephalus</i> , <i>Archoargus</i>	27, 88
<i>productus</i> , <i>Merluccius</i>	24, 77
<i>profundorum</i> , <i>Seylliorhinus</i>	11, 117
<i>prognathus</i> , <i>Argyrosomus</i>	15, 50
<i>promelas</i> , <i>Pimphales</i>	18, 61
<i>proximus</i> , <i>Microgadus</i>	21, 78
<i>Psettichthys melanostictus</i>	29, 93

	PAGE		PAGE
pseudoharengus, Pomolobus.....	14, 47	rhodorus, Ascelichthys.....	33, 105
Pseudopleuronectes americanus.....	29, 94	ricei, Cottus.....	32, 101
Psychrolutes paradoxus.....	33, 105	richardsoni, Rhamphocottus.....	33, 105
Psychocheilus oregonensis.....	18, 62	richardsonii, Coregonus.....	14, 48
pugotensis, Chitonotus.....	31, 98	rivularis, Salmo.....	15, 52
pulchellus, Liparis.....	34, 109	" kamloops, Salmo.....	15, 52
punctatum, Mycetophum.....	21, 70	Roccus chrysops.....	27, 86
punctatus, Ictalurus.....	17, 56	" lineatus.....	27, 86
" Stichaenus.....	35, 112	Ronquilus jordani.....	27, 87
punctulata, Microperca.....	26, 86	rostrata, Macdonaldia.....	21, 72
pungitius, Pygosteus.....	22, 72	rostratus, Heterostichus.....	35, 110
" brachypoda, Pygosteus.....	22, 72	ruberrimus, Sebastodes.....	31, 97
pusillus, Argirosomus.....	15, 50	rubicundus, Acipenser.....	13, 44
putnami, Cottogaster copelandi.....	26, 84	rubrifrons, Notropis.....	19, 64
" Liopsetta.....	29, 94	rupestre, Xiphidion.....	35, 111
pygmæa, Eucalia inconstans.....	22, 72	rupestris, Ambloplites.....	25, 82
Pygosteus pungitius.....	22, 72	" Coryphenoides.....	25, 81
" " brachypoda.....	22, 72	Ruscarius meanyi.....	32, 99
quadracus, Apeltes.....	22, 73	saida, Boreogadus.....	24, 77
quadricornis, Hypsagonus.....	33, 105	salar, Salmo.....	15, 51
quadrilateralis, Coregonus.....	14, 48	" ouananiche, Salmo.....	15, 52
quercinum, Macrostoma.....	20, 70	" sebago, Salmo.....	15, 52
Quietula y-cauda.....	30, 95	Salmo clarkii.....	15, 52
radiata, Raja.....	12, 42	" irideus.....	15, 52
Radulinus asprellus.....	32, 99	" rivularis.....	15, 52
raii, Brama.....	29, 92	" " kamloops.....	15, 52
Raja abyssicola.....	12, 43	" salar.....	15, 51
" binoculata.....	12, 43	" " ouananiche.....	15, 52
" erinacea.....	12, 42	" " sebago.....	15, 52
" fyllæ.....	12, 42	" trutta levenensis.....	15, 53
" granulata.....	12, 43	salmoides, Micropterus.....	26, 83
" lævis.....	12, 42	Salmonide.....	14-15
" ocellata.....	12, 42	Salmonoidea.....	14-16
" radiata.....	12, 42	saltatrix, Pomatomus.....	29, 92
" rhina.....	12, 43	Salvelinus alpinus alipes.....	15, 53
" senta.....	12, 42	" " areturus.....	15, 54
" stellulata.....	12, 43	" " stagnalis.....	15, 54
Rajidae.....	12	" fontinalis.....	15, 53
ranula, Careproctus.....	34, 109	" marstoni.....	15, 54
rastrelliger, Sebastodes.....	31, 117	" oquassa naresi.....	15, 54
regalis Cynoscion.....	27, 87	" parkei.....	15, 53
regius, Urophycis.....	25, 80	sapidissima, Alosa.....	14, 47
Reinhardtius hippoglossoides.....	29, 92	Sarda chilensis.....	28, 90
Remora remora.....	30, 96	" sarda.....	28, 90
remora, Remora.....	30, 96	sarda, Sarda.....	28, 90
reticulatus, Lucius.....	20, 68	saurus, Scombrox.....	23, 74
" Lycodes.....	36, 114	sayanus, Aphredoderus.....	25, 81
rex-salmonorum, Trachipterus.....	37, 115	Schilbeodes gyrius.....	17, 58
Rhamphocottidae.....	33	schœpfi, Chilomyxerus.....	37, 116
Rhamphocottus richardsoni.....	33, 105	Seiænidæ.....	27
rhina, Raja.....	12, 43	Sclerodermi.....	37
Rhinichthys atronatus.....	19, 65	Scleroparei.....	30-34
" cataractæ.....	19, 65	scelopaceus, Nemichthys.....	19, 68
" " dulcis.....	19, 65	Scomber japonicus.....	28, 89
Rhinoscopelus coccoi.....	21, 70	" scombrus.....	28, 89
		Scombrosideæ.....	23

	PAGE		PAGE
Scombre-ox saurus.....	23, 74	siscowet, Cristivomer namaycush.....	15, 53
Scombridae.....	28	sloanei, Chauliodon.....	16, 56
Scombriformes.....	28-29	Somniosus microcephalus.....	12, 41
scombrus, Scomber.....	28, 89	sordidus, Citharichthys.....	30, 95
scopifer, Notropis.....	18, 64	Sparidae.....	27
Scorpenichthys marmoratus.....	31, 98	sparoides, Pomoxis.....	25, 81
Scorpenidae.....	30-31	spatulula, Polyodon.....	13, 44
scorpioides, Myoxocephalus.....	32, 102	Sphyrana argentea.....	23, 76
scorpius.....	32, 102	Sphyranidae.....	23
seyla, Notropis.....	18, 63	spilotus, Cottus.....	32, 102
Seyllorhinidae.....	11	spinous, Eumierotremus.....	34, 107
Seyllorhinus profundorum.....	11, 117	Squalidae.....	12
Seytalina cordale.....	36, 113	Squalus acanthias.....	12, 41
Seytalinidae.....	36	" suekii.....	12, 41
sebago, Salmo salar.....	15, 52	stagnalis, Salvelinus alpinus.....	15, 54
Sebastes marinus.....	30, 96	stellatus, Platicthys.....	29, 94
Sebastodes alutus.....	31, 97	stelleri, Hexagrammos.....	31, 98
" auriculatus dallii.....	31, 97	stellulata, Raja.....	12, 43
" brevispinis.....	31, 97	Stenodus mackenzii.....	15, 50
" caurinus.....	31, 97	Stenotomus chrysops.....	27, 88
" chrysomelas.....	31, 97	Sternopterygidae.....	16
" goodiei.....	30, 117	Sternoptyx diaphanus.....	16, 56
" introniger.....	31, 97	Stichæus punctatus.....	35, 112
" maliger.....	31, 97	stigma, Gymnelis.....	36, 115
" melanops.....	30, 96	Stizostedion canadense.....	26, 84
" mystinus.....	31, 96	" vitreum.....	26, 83
" nebulosus.....	31, 97	stomias, Atheresthes.....	29, 92
" nigrocinctus.....	31, 97	Stomias ferox.....	16, 56
" paucispinis.....	30, 96	Stomatidae.....	16
" pinniger.....	31, 97	Stomiatoides.....	16
" rastrelliger.....	31, 117	storcerianus, Hybopsis.....	19, 66
" ruberrimus.....	31, 97	stouti, Poli-totremus.....	11, 38
Sebastolobus alascanus.....	30, 96	strabo, Icelinus.....	31, 99
" altivelis.....	30, 96	Stromateidae.....	24
selene, Notropis hudsonius.....	18, 64	sturio oxyrhynchus, Acipenser.....	13, 14
Selene vomer.....	28, 92	subbifurcata, Uvaria.....	36, 112
Selenichthys.....	21-22	suetta oblongus, Erimyzon.....	17, 59
semiscaber, Cottus.....	32, 101	suekii, Squalus.....	12, 41
Semotilus atromaculatus.....	18, 64	supercilius, Hexagrammos.....	31, 98
" corporalis.....	18, 61	swanii, Bothragonus.....	34, 106
senta, Raja.....	12, 42	Synaphobranchidae.....	20
Seriola zonata.....	28, 91	Synaphobranchus pinnatus.....	20, 68
Serranidae.....	27	Synchiru- gilli.....	33, 105
serrula, Chalinura.....	25, 81	Syngnathidae.....	22
setiger, Dasyceotus.....	32, 103	tabacaria, Fistularia.....	22, 73
shumardi, Cottogaster.....	26, 84	Tenio-omi.....	37
sicculus, Labidesthes.....	23, 75	Teniotoca lateralis.....	27, 88
signifer, Thymallus.....	15, 54	Tarletonbeania crenularis.....	21, 71
sigolutes, Gilbertidia.....	33, 105	Tarpon atlanticus.....	13, 45
silenus, Zaprorus.....	24, 77	Tautoga onitis.....	28, 89
Siluridae.....	17	Tautoglabrus adpersus.....	28, 89
silus, Argentina.....	16, 56	taylori, Asemichthys.....	32, 100
Simenchelyidae.....	19	Tectopondyli.....	12-13
Simenchelys parasiticus.....	19, 67	Teleostei.....	13-37
simillimus, Palometa.....	24, 76	Teleo-tomi.....	13-37
Siphostoma fuscum.....	22, 74	tenuis, Urophycis.....	25, 80
" griseolineatum.....	22, 74		

	PAGE		PAGE
tergisus, Hyodon.....	14, 46	Urophycis regius.....	25, 80
terrae-novae, Lycodes.....	36, 114	" tenuis.....	25, 80
thaleichthys, Omerus.....	16, 55	vahlII, Lycodes.....	36, 114
Thaleichthys pacificus.....	16, 55	velifer, Carpiodes.....	17, 58
Theragra fucensis.....	24, 78	verrillii, Lycenchelys.....	36, 114
thota, Diaphus.....	20, 70	vetulus, Parophrys.....	29, 93
thompsoni, Carpiodes.....	17, 58	vigilax, Chlora.....	18, 62
" Triglopsis.....	32, 103	villosus, Mallotus.....	15, 55
Thoraco-tei.....	22	vinciguerrae, Exonantes.....	23, 75
Thunnus thynnus.....	28, 90	viola, Antimora.....	25, 79
Thymallidae.....	15	violaceus, Escalar.....	28, 90
Thymallus signifer.....	15, 54	virens, Pollachius.....	24, 77
" tricolor.....	15, 54	virgatus, Delolepis.....	36, 112
" " montanus.....	15, 55	viridis, Gymnclis.....	36, 115
thynnus, Thunnus.....	28, 90	vitreum, Stizostedion.....	26, 83
tomcod, Microgadus.....	24, 78	volitans, Cephalacanthus.....	34, 109
Trachurops crumenophthalmus.....	28, 91	" Exocoetus.....	23, 74
Trachypteridae.....	37	volucellus, Notropis.....	18, 63
Trachypterus rex-salmonorum.....	37, 115	vomer, Sclene.....	28, 92
transmontana, Columbia.....	21, 71	vulgaris, Ameiurus.....	17, 57
trans-montanus, Acipenser.....	13, 44	vulpes, Albula.....	14, 45
triacaanthus, Peronotus.....	24, 76	" Alopias.....	12, 40
Trichodon trichodon.....	27, 87	whippII, Notropis.....	18, 64
trichodon, Trichodon.....	27, 87	wilderi, Lampetra.....	11, 39
Trichodontidae.....	27	williamsoni, Coregonus.....	14, 48
tricolor, Thymallus.....	15, 54	" microcephalus, Gastrosteus.....	22, 73
" montanus, Thymallus.....	15, 55	willoughbyi, Acrotus.....	24, 77
tricuspi, Gymnocanthus.....	33, 104	Xenochirus pentacanthus.....	33, 106
tridentatus, Entosphenus.....	11, 39	Xerorpes fucorum.....	35, 110
Triglidae.....	34	Xiphias gladius.....	28, 91
Triglops beani.....	32, 100	Xiphidion mucosum.....	35, 111
" pingeli.....	32, 100	" rupestre.....	35, 111
Triglopsis ontariensis.....	32, 104	Xiphiidae.....	28
" thompsoni.....	32, 103	Xiphistes chirus.....	35, 111
trispinosus, Odontopyxis.....	33, 106	Xystes axinophrys.....	33, 106
trutta levenensis, Salmo.....	15, 53	y-cauda, Quietula.....	30, 95
tschawyttscha, Onchorhynchus.....	15, 51	zachirus, Glyptocephalus.....	30, 95
tullillee, Argyrosomus.....	15, 50	Zadiolopis latipinnis.....	31, 98
tunicatus, Liparis.....	34, 108	Zaprora silenus.....	24, 77
tyrannus, Brevoortia.....	14, 47	Zaproridae.....	24
ulochir, Paraliparis.....	34, 109	Zoarholmia.....	29-30
Uluap, sul bifurcata.....	36, 112	Zoarcetes anguillaris.....	36, 113
umatilla, Agosia.....	19, 65	Zoarcidae.....	36
Umbra lutea.....	20, 63	zoarcus, Lycodes.....	36, 114
umbratilis, Notropis.....	19, 65	zonata, Seriola.....	28, 91
Umbra.....	26	zonope, Jordania.....	31, 98
unicolor, Petromyzon marinus.....	11, 38	zyopterus, Galeorhinus.....	12, 40
Uranidea bendirei.....	32, 102		
" formosa.....	32, 102		
" franklani.....	32, 102		
" graobli.....	32, 102		
Urophycis chuss.....	25, 80		

INDEX TO VERNACULAR NAMES

	PAGE		PAGE
Alaska Dab.....	29, 94	Black-nosed Dace.....	19, 65
" Stickleback.....	22, 73	Black Rock-fish.....	31, 96
" Wolf-fish.....	36, 113	Black Sea Bass.....	30, 96
Albacore, Long-finned.....	28, 90	Black-sided Darter.....	26, 84
Alewife.....	14, 47	Black Sucker.....	17, 59
Alligator Fish.....	31, 107	Black Swallower.....	23, 76
" " , Common.....	33, 106	Blenny, Serpent.....	35, 112
" " , Dark Coloured.....	33, 106	" Snake.....	35, 111
American Eel.....	19, 67	" Tufted.....	35, 110
" Hagfish.....	11, 38	" Yellow.....	35, 110
" Perch.....	26, 84	Bloater.....	15, 50
" Shad.....	14, 47	Blot.....	32 (445:455), 101, 102
" Smelt.....	16, 55	" , Deep-water.....	32, 103
Anacanth.....	24, 25	Blue-back Salmon.....	15, 51
Anchovy, California.....	14, 48	Blue-fin.....	15, 50
Angler.....	37, 115	Blue-fish.....	29, 92
Antimora, Small-sealed.....	25, 79	Blue Herring.....	14, 46
" Violet.....	25, 79	Blue Sunfish.....	26, 83
Arctic Charr.....	15, 54	Blue Surf-fish.....	27, 88
" Grayling.....	15, 54	Blunt-nosed Minnow.....	18, 61
" Sculpin.....	32, 102	Bocaccio.....	30, 96
" Stickleback.....	22, 72	Bonito.....	28, 90
Argentine.....	16, 56	" , California.....	28, 90
Arrow-toothed Halibut.....	29, 92	" , Oceanic.....	28, 89
Atlantic Salmon.....	15, 51	Boregat.....	31, 98
Banded Sailor Fish.....	33, 104	Bowfin.....	13, 45
" Seriole.....	28, 91	Bream	18, 62
Barn-door Skate.....	12, 42	Broad-fin Cod.....	31, 98
Barracuda, California.....	23, 76	Broad Whitefish.....	14, 48
Basking Shark.....	12, 41	Brook Lamprey.....	11 (8:9:10), 39 (8:9:10)
Bass, Black Sea.....	30, 96	" Stickleback.....	22, 72
" Calico.....	25, 81	" Trout.....	15, 53
" Large-mouth Black.....	26, 83	Brown Rock-fish.....	31, 97
" Rock.....	25, 82	Buffalo Fish, Common.....	17, 58
" Small-mouth Black.....	26, 83	" Small-mouth.....	17, 58
" Strawberry.....	25, 81	Buffalo Sculpin.....	32, 100
" Striped.....	27, 86	Bull-head, Black.....	17, 57
" White.....	27, 86	" Great-Bear-Lake.....	32, 101
" White Sea.....	27, 87	" Prickly.....	32, 100
Big Skate.....	12, 42	" Rocky Mountain.....	32, 101
Big-Skate-of-California.....	12, 43	Bull-head Minnow.....	18, 62
Billfish.....	23, 74	Bull Minnow.....	18, 61
Black and Yellow Rock-fish.....	31, 97	Burbot.....	25, 79
Black-banded Rock-fish.....	31, 97	Burr-fish, Common.....	37, 116
Black Bass, Large-mouth.....	26, 83	Butter-fish.....	35, 110
" " Small-mouth.....	26, 83	Cabezon.....	31, 98
Black Bullhead.....	17, 57	Calico Bass.....	25, 81
Black-chin Minnow.....	18, 63	California Anchovy.....	14, 48
Black-fin.....	15, 50	" Barracuda.....	23, 76
Black-fish.....	28, 89	" Bonito.....	28, 90
Black-head Minnow.....	18, 61	" Dogfish.....	12, 41

	PAGE		PAGE
California Hagfish.....	11, 38	Common Alligator-fish.....	33, 106
" Herring.....	14, 46	" American Sea-Horse.....	22, 74
" Miller's Thumb.....	32, 100	" Buffalo-fish.....	17, 58
" Pompano.....	24, 76	" Burr-fish.....	37, 116
" Sardine.....	14, 46	" Catfish.....	17, 57
" Smelt.....	23, 75	" Cobbler.....	20, 69
" Sole.....	29, 93	" Codfish.....	24, 78
" Stickleback.....	22, 73	" Eastern Pickerel.....	20, 68
" Tomcod.....	24, 78	" Flatfish.....	29, 94
Candle-fish.....	16, 55	" Garpike.....	13, 45
Capelin.....	15, 55	" Gurnard.....	34, 109
Carp, German.....	19, 67	" Herring.....	14, 46
Cat-fish, Channel.....	17, 56	" Killifish.....	20, 69
" Common.....	17, 57	" Mackerel.....	28, 89
" Lake.....	17, 57	" Pike.....	20, 69
" Long-jawed.....	17, 57	" Pipe Fish.....	22, 74
" Stone.....	17, 57	" Red Horse.....	17, 60
" Yellow.....	17, 57	" Sawfish.....	12, 42
Cat-fishes.....	17	" Sculpin.....	32, 103
Cat Shark.....	11, 39	" Scup.....	27, 88
Cayuga Shiner.....	18, 63	" Skate.....	12, 42
Channel Catfish.....	17, 56	" Stickleback.....	22, 73
Charr, Arctic.....	15, 54	" Sting Ray.....	13, 43
" Greenland.....	15, 54	" Sturgeon.....	13, 44
" Long-finned.....	15, 53	" Sunfish.....	26, 83
" Nares.....	15, 54	" Surf-fish.....	27, 88
Cheney's Darter.....	26, 85	" Weakfish.....	27, 87
Chimæra.....	13, 43	" Whitefish.....	14, 49
Chimæras.....	13	" White Sucker.....	17, 59
Chisel-mouth.....	18, 60	Conger Eel.....	19, 67
Chub, Columbia River.....	18, 61	Coulter's Whitefish.....	14, 48
" Creek.....	18, 61	Cow Shark.....	11, 39
" Flat-headed.....	19, 66	Craig Fluke.....	30, 95
" Green's.....	19, 66	Crappie.....	25, 81
" Lake.....	19, 66	Creek Chub.....	18, 61
" Silver.....	18, 19, 61, 66	Cultus Cod.....	31, 98
Chub Mackerel.....	28, 89	Cunner.....	28, 89
" Sucker.....	17, 59	Cusk.....	25, 80
Cisco.....	15, 49	Cut-lip Minnow.....	19, 66
" Mooneye.....	15, 49	Cutthroat Trout.....	15, 52
" Lauretta.....	15, 50	Cyprinoids.....	17-19
Cling-fish.....	35, 110		
Clupeoids.....	13-14	Dab, Alaska.....	29, 94
Coal-fish.....	24, 31, 77, 98	" Rough.....	29, 93
Cobbler, Common.....	20, 69	" Rusty.....	29, 94
" Garman's.....	20, 69	" Sand.....	29, 93
Cod, Broad-fin.....	31, 98	Dace.....	18, 64
" Cultus.....	31, 98	" Black-nosed.....	19, 65
" Painted.....	31, 98	" Horned.....	18, 61
Codfish, Common.....	24, 78	" Long-nosed.....	19 (185:186), 65 (185:186)
" Greenland.....	24, 78	" Nachtrieb.....	18, 62
" Pacific.....	24, 78	" Red-bellied.....	18, 61
Codling.....	25 (288-290), 80 (288-290)	Daddy Sculpin.....	32, 103
Coho.....	15, 51	Dark-coloured Alligator-fish.....	33, 106
Columbia River Chub.....	18, 61	Darter, Black-sided.....	26, 84
" Minnow.....	18, 62	" Cheney's.....	26, 85
" Sucker.....	17, 59	" Fan-tailed.....	26, 85

	PAGE		PAGE
Darter, Fusiform.....	26, 86	Flounder, Starry.....	29, 94
" Günther's.....	26, 84	" Two-lined.....	29, 94
" Johnny.....	26, 85	" Winter.....	29, 94
" Least.....	26, 86	Fluke, Craig.....	30, 95
" Northern.....	26, 85	Flying Fish.....	23 (256-258), 74, 75 (257:258)
" Putnam's.....	26, 84	Flying Gurnard.....	31, 109
" Rainbow.....	26, 85	Flying Robin.....	31, 109
" Sand.....	26, 85	Four-bearded Rockling.....	25, 80
" Shumard's.....	26, 84	Four-spined Stickleback.....	22, 73
" Tessellated.....	26, 85	Franklin's Sculpin.....	32, 102
Deep Sea Eel.....	20, 68	Fresh-water Drum.....	27, 87
" Ray.....	12, 43	" Kilby.....	20, 69
" Smelt.....	16, 56	" Ling.....	25, 79
Deep-water Blop.....	12, 103	Frost-fish.....	24, 78
Dogfish.....	13, 45	Fusiform Darter.....	26, 86
" , California.....	12, 41	Garman's Cobbler.....	20, 69
" , Pickled.....	12, 41	Garpike, Common.....	13, 45
" , Spiny.....	12 (22:23), 41 (22:23)	" Short-nosed.....	13, 45
Dog Salmon.....	15, 51	Gaspereau.....	14, 47
Dollarfish.....	21, 76	German Carp.....	19, 67
Dolly Varden Trout.....	15, 53	Ghost-fish.....	36, 112
Drum, Freshwater.....	27, 87	Gizzard Shad.....	14, 46
Dusky Minnow.....	19, 65	Globe-headed Sculpin.....	33, 104
Dwarf Stickleback.....	22, 72	Glut Herring.....	14, 47
Eastern Stickleback.....	22, 73	Gobiiform Fishes.....	30
Eel, American.....	19, 67	Goby.....	30 (395-398), 95 (395-398)
" Conger.....	19, 67	Goggle Eye.....	26, 82
" Deep-sea.....	20, 68	Goggles.....	28, 91
" Snipe.....	19 (204-206), 68 (204-206)	Golden Shiner.....	18, 62
" Spiny.....	21 (236:237), 72 (236:237)	Goldeye, Western.....	14, 46
" Snub-nosed.....	19, 67	Goldfish.....	19, 67
" Wolf.....	36, 113	Grass Rockfish.....	31, 117
Eel-back Flounder.....	29, 94	Grayback.....	20, 69
Eel Pout.....	36, 113	Grayling, Arctic.....	15, 54
" , Pacific.....	36, 113	" Michigan.....	15, 54
" , Rock.....	35, 111	" Montana.....	15, 55
" , Slimy.....	35, 111	Gray Sucker.....	17, 58
Eels.....	19-20	Great-Bear-Lake-Bull-head.....	32, 101
Escolar.....	28, 90	" " Herring.....	15, 50
European Sculpin.....	32, 102	" Blue Shark.....	12, 40
Falcate Minnow.....	19, 65	" Lake Trout.....	15, 53
Fall-fish.....	18, 61	" Minnow.....	19, 64
Fall Herring.....	14, 47	" Sculpin.....	32, 103
Fan-tailed Darter.....	26, 85	" Sea Lamprey.....	11, 38
File-fish.....	37, 116	" White Shark.....	12, 40
Fishing Frog.....	37, 115	Greenland Charr.....	15, 54
Flatfish, Common.....	29, 94	" Codfish.....	24, 78
Flat-fishes.....	29-30	" Halibut.....	29, 92
Flat-headed Chub.....	19, 66	" Shark.....	12, 41
Flounder, Eel-back.....	29, 94	Greenling.....	31, 98
" Muddy.....	29, 93	Green Pike.....	20, 68
" Pole.....	30, 95	" Sunfish.....	26, 82
" Sharp-nosed.....	29, 93	" Sturgeon.....	13, 44
" Smooth.....	29, 94	Green's Chub.....	19, 66
" Soft.....	30, 95	" Sucker.....	34, 108
		Grenadier.....	25 (299:300) 81 (299:300)

	PAGE
Grubby.....	32, 102
Gulper.....	20, 68
Gunnel.....	35, 110
" Ornamented.....	35, 111
Günther's Darter.....	26, 84
Gunnard, Common.....	34, 109
" Flying.....	34, 109
Haddock.....	24, 79
Hagfish, American.....	11, 38
" California.....	11, 38
Hake, Pacific.....	24, 77
" Silver.....	24, 77
" Squirrel.....	25, 80
" White.....	25, 80
Halibut.....	29, 93
" , Arrow-toothed.....	29, 92
" , Greenland.....	29, 92
Hand-saw Fish.....	21 (232:233), 71 (232:233)
Hard-tail.....	28, 92
Harvest-fish.....	24, 76
Head-fish.....	37, 116
Head-light Fish.....	20, 70
Herring, Blue.....	14, 46
" California.....	14, 46
" Common.....	14, 46
" Fall.....	14, 47
" Glut.....	14, 47
" Great-Bear-Lake.....	15, 50
" Lake.....	15, 49
" Rainbow.....	16, 55
" Toothed.....	14, 46
Hickery Shad.....	14 (54:59), 46, 47
Horned Dace.....	18, 61
" Pout.....	17, 57
Horse Mackerel.....	28, 90
Humpback Salmon.....	15, 51
" Whitefish.....	14, 49
Idaho Minnow.....	19, 65
Inconnu.....	15, 50
Jack-fish.....	30, 96
Johnny Darter.....	26, 85
Jordan's Shiner.....	18, 63
Kamloop's Trout.....	15, 52
Kelpfish.....	35, 110
Kennerly's Salmon.....	15, 51
Killifish, Common.....	20, 69
Killy, Fresh-water.....	20, 69
King Fish.....	22, 72
King-of-the-Salmon.....	37, 115
King Salmon.....	15, 51
Labrador Whitefish.....	14, 49
Lady-fish.....	14, 45
Lake Carp Sucker.....	17, 58

	PAGE
Lake Catfish.....	17, 57
" Chub.....	19, 66
" Herring.....	15, 49
" Miller's Thumb.....	32, 102
" Minnow.....	19, 66
" Sculpin.....	32, 103
" Sheepshead.....	27, 87
" Silverside.....	23, 75
" Sturgeon.....	13, 44
Lamprey, Brook.....	11 (8:9:10), 39 (8:9:10)
" Great Sea.....	11, 38
" Landlocked.....	11, 38
" Northern.....	11, 38
" Silver.....	11, 38
" Small Black.....	11, 39
" Three-toothed.....	11, 39
Lancet Fish.....	21, 71
Landlocked Lamprey.....	11, 38
" Salmon.....	15, 52
Langbarn.....	35, 111
Lant.....	23, 75
" Sand.....	23, 75
Lantern Fish.....	20, 21, 70 (221:227)
Large-mouth Black Bass.....	26, 83
Large-scaled Red Horse.....	17, 60
Launce, Sand.....	23 (259-261), 75 (259-261)
Lauretta Cisco.....	15, 50
Least Darter.....	26, 86
" Whitefish.....	15, 50
Ling.....	25, 79
Ling, Fresh-water.....	25, 79
Little Red-fish.....	15, 51
Loch Leven Trout.....	15, 53
Log Perch.....	26, 84
Long-eared Sunfish.....	26 (307:308), 82 (307:308)
Long-finned Albacore.....	28, 90
" Charr.....	15, 53
" Sole.....	30, 95
Long-horned Sculpin.....	32, 103
Long-jaw.....	15, 50
Long-jawed Catfish.....	17, 57
Long-nosed Dace.....	19 (185:186), 65 (185:186)
Long-spined Sculpin.....	32, 103
Lugger, Stone.....	18, 60
Lump-fish.....	34, 107
Lump-sucker.....	34, 107
Mackerel, Chub.....	28, 89
" Common.....	28, 89
" Horse.....	28, 90
" Yellow.....	28, 92
Mackerel Shad.....	28, 91
" Shark.....	12, 40
Mad Tom.....	17, 58
Mail-checked Fishes.....	30-34
Marston Trout.....	15, 54
Maskinonge.....	20, 69

	PAGE		PAGE
Maskinonge	20, 69	Oregon Trout Perch.....	21, 71
Menhaden.....	14, 47	Ornamented Gunnel.....	35, 111
Michigan Grayling.....	15, 54	Ousauaniehe	15, 52
Midshipman.....	35, 109		
Miller's Thumb.....	32, 102	Pacific Codfish.....	24, 78
" , California.....	32, 100	" Eel Pout.....	36, 113
" , Lake.....	32, 102	" Hake.....	24, 77
" , Olivaceous.....	32, 101	" Smelt.....	16, 55
Minnow, Black-chin.....	18, 63	Paddle-fish.....	13, 44
" Black-head.....	18, 61	Painted Cod.....	31, 98
" Blunt-nosed.....	18, 61	Partly Armoured Stickleback.....	22, 73
" Bull.....	18, 61	Perch, American.....	26, 84
" Bull-head.....	18, 62	" Log.....	26, 84
" Columbia River.....	18, 62	" Oregon Trout.....	21, 71
" Cut-lip.....	19, 66	" Pike.....	26, 83
" Dusky.....	19, 65	" Pirate.....	25, 81
" Falcate.....	19, 65	" Trout.....	21, 71
" Great.....	19, 64	" Viviparous.....	27, 88
" Idaho.....	19, 65	" White.....	27, 87
" Lake.....	19, 66	" Yellow.....	26, 84
" Mud.....	20, 69	Perciform Fishes.....	25-28
" Poor.....	18, 64	Pescado del Rey.....	23, 75
" Redfin.....	19, 65	Physoclistous Teleostomes.....	21-37
" Rosy-front.....	19, 64	Physostomous ".....	13-21
" Satin-fin.....	18, 64	Picked Dogfish.....	12, 41
" Silver.....	18, 61	Pickrel, Common Eastern.....	20, 68
" Spot-tail.....	18, 64	Pigmy Sculpin.....	32, 102
" Straw-coloured.....	18, 63	Pike, Common.....	20, 69
" Top.....	20, 69	" Green.....	20, 68
" White.....	18, 61	Pike Perch.....	26, 83
Monk-fish.....	37, 115	Pilot-fish.....	28, 91
Montana Grayling.....	15, 55	Pipe Fish.....	22, 74
Mooneye.....	14, 46	" , Common.....	22, 74
" , Shad.....	14, 45	Pirate Perch.....	25, 81
Moon-ye Cisco.....	15, 49	Plagiostomes.....	11-13
Moonfish.....	28, 92	Pogge.....	33, 106
Mossbunker.....	14, 47	Pole Flounder.....	30, 95
Mountain Sucker.....	17, 58	Pollack.....	24, 77
Muddy Flounder.....	29, 93	" , Northern.....	24, 77
Mud Minnow.....	20, 69	" , Wall-eyed.....	24, 78
Mullet, Short-headed.....	17, 60	Pomfret.....	29, 92
Muskoka Shiner.....	18, 63	Pompano, California.....	24, 76
		Poor Minnow.....	18, 64
Nachtrieb Dace.....	18, 62	Poppy Fish.....	24, 76
Nares Charr.....	15, 51	Porbeagle.....	12, 40
Nine-spined Stickleback.....	22, 72	Porgee.....	27, 89
Northern Darter.....	26, 85	Porgy.....	27, 88
" Lamprey.....	11, 38	Pout, Eel.....	36, 113
" Pollack.....	24, 77	" Horned.....	17, 57
" Red Horse.....	17, 60	" Pacific Eel.....	36, 113
" Sucker.....	17, 58	" Rock Eel.....	35, 111
		" Slimy Eel.....	35, 111
Oceanic Bonito.....	28, 89	Prickled Sailor-fish.....	33, 104
Oil Shark.....	12, 40	Prickly Bull-head.....	32, 100
Olivaceous Miller's Thumb.....	32, 101	Priest-fish.....	31, 96
Oolachan.....	16, 55	Prowfish.....	24, 77
Opah.....	21, 72	Putnam's Darter.....	26, 84
Orange Rock-fish.....	31, 97		

	PAGE		PAGE
Quillback.....	17, 58	Rudderfish.....	24, 28, 76, 91
Quinnat.....	15, 51	Rusty Dab.....	29, 94
		Ross (ste).....	11, 117
Radiated Shanny.....	36, 112		
Ragfish.....	24 (270:271) 76, 77	Sailor-fish, Banded.....	33, 104
Rainbow Darter.....	26, 85	" Prickled.....	33, 104
Herring.....	16, 55	Salmon, Atlantic.....	15, 51
Trout.....	15, 52	Blue-back.....	15, 51
Rat-fish.....	13, 43	Dog.....	15, 51
Ray, Common Sting.....	13, 43	Humpback.....	15, 51
Deep Sea.....	12, 43	Kennerly's.....	15, 51
Starry.....	12, 42	King.....	15, 51
Rays.....	12, 13	King-of-the.....	37, 115
Red-bellied Dace.....	18, 61	Landlocked.....	15, 52
Red Canadian Trout.....	15, 54	Silver.....	15, 51
Redfin.....	18, 64	Sockeye.....	15, 51
Redfin Minnow.....	19, 65	Spring.....	15, 51
Redfish, Little.....	15, 51	Salmonoids.....	11-16
Red Horse, Common.....	17, 60	Salmon Trout.....	15, 53
Large-scaled.....	17, 60	Sand Dab.....	29, 93
Northern.....	17, 60	Darter.....	26, 85
White-nosed.....	17, 59	-fish.....	27, 87
Red Rock-fish.....	31, 97	Laut.....	23, 75
Red Rock Trout.....	31, 98	Launce.....	23 (259-261) 75 (259-261)
Red Sculpin.....	32, 100	Roller.....	21, 71
Red-sided Shiner.....	18, 62	Sardine, California.....	14, 46
Red-spotted Sunfish.....	26, 82	Satin-fin Minnow.....	18, 64
Remora.....	30, 96	Sauger.....	26, 84
Ribbon-fish.....	27, 87	Sault Whitefish.....	14, 49
Richardson's Sculpin.....	33, 105	Saury.....	23, 74
Richardson's Whitefish.....	14, 48	Sawfish, Common.....	12, 42
Roach.....	18, 62	Scombriform Fishes.....	28-29
Rock Bass.....	25, 82	Sculpin, Arctic.....	32, 102
Rock Eel Pout.....	35, 111	Buffalo.....	32, 100
Rock-fish, Black.....	31, 96	Common.....	32, 103
Black and Yellow.....	31, 97	Daddy.....	32, 103
Black-banded.....	31, 97	European.....	32, 102
Brown.....	31, 97	Franklin's.....	32, 102
Grass.....	31, 117	Globe-headed.....	33, 104
Orange.....	31, 97	Great.....	32, 103
Red.....	31, 97	Lake.....	32, 103
Yellow-backed.....	31, 97	Long-horned.....	32, 103
Yellow-spotted.....	31, 97	" spined.....	32, 103
Rock-fishes.....	30-31	Pigmy.....	32, 102
Rockling, Four-bearded.....	25, 80	Red.....	32, 100
Three-bearded.....	25, 80	Richardson's.....	33, 105
Rock Trout, Red.....	31, 98	Spineless.....	33, 105
Starry.....	31, 98	Stone.....	32, 100
Rocky Mountain Bull-head.....	32, 101	Scup, Common.....	27, 88
Whitefish.....	14, 48	Sea Bass, Black.....	30, 96
Roller, Sand.....	21, 71	Devil.....	37, 115
Stone.....	17, 18, 59, 60	-horse, Common American.....	22, 74
Ronquil.....	27, 87	Poacher.....	33, 34, 106, 107
Rose-fish.....	30, 96	Raven.....	33 (474:475) 105 (474:475)
Rosy-front Minnow.....	19, 64	Snail.....	34, 108
Rough Dab.....	29, 93	Serirole, Banded.....	28, 91
Round Whitefish.....	14, 48	Serpent Blenny.....	35, 112

	PAGE		PAGE
Shad, American.....	14, 47	Snail, American.....	16, 55
" Gizzard.....	14, 46	" California.....	23, 75
" Hickory.....	14 (54:59), 46, 47	" Deep Sea.....	16, 56
" Mackerel.....	28, 91	" Pacific.....	16, 55
Shad Mooneye.....	14, 45	" Sial.....	16, 56
Shad-Waiter.....	14, 48	" Surf.....	16, 55
Shanny, Radiated.....	36, 112	Smelt-of-the-New-York-Lakes.....	15, 49
Shark, Basking.....	12, 41	Smooth Flounder.....	29, 94
" Cat.....	11, 39	Snake Blenny.....	35, 111
" Cow.....	11, 39	Snapper.....	30, 96
" Great Blue.....	12, 40	Snipe Eel.....	19 (204-206), 68 (204-206)
" White.....	12, 40	Snub-nosed Eel.....	19, 67
" Greenland.....	12, 41	Sockeye Salmon.....	15, 51
" Mackerel.....	12, 40	Soft Flounder.....	30, 95
" Oil.....	12, 40	Sole.....	29, 93
" Shovel-nosed.....	11, 39	" California.....	29, 93
" Sleeper.....	12, 41	" Long-finned.....	30, 95
" Swell.....	11, 39	" Slippery.....	30, 95
Sharks.....	11 12	Sparada.....	27, 88
Sharp-nosed Flounder.....	29, 93	Spawn-eater.....	18 (176:177), 61 (176:177)
Sheephead.....	27, 88	Speckled Trout.....	15, 53
" , Lake.....	27, 87	Spineless Sculpin.....	33, 105
Shiner, Cayuga.....	18, 63	Spiny Dogfish.....	12 (22:23) 41 (22:23)
" Golden.....	18, 62	Spiny Eel.....	21 (236:237), 72 (236:237)
" Jordan's.....	18, 63	Spiny-rayed Fishes.....	25-37
" Muskoka.....	18, 63	Spot-tail Minnow.....	18, 64
" Red-sided.....	18, 62	Spotted Shiner.....	19, 66
" Spotted.....	19, 66	" Sucker.....	17, 59
Short-headed Mullet.....	17, 60	Spring Salmon.....	15, 51
Short-nosed Garpike.....	13, 45	Squaw-fish.....	18, 62
" Sturgeon.....	13, 44	Squirrel Hake.....	25, 80
Shovel-nosed Shark.....	11, 39	Starry Flounder.....	29, 94
Shumard's Darter.....	26, 84	" Ray.....	12, 42
Siel Smelt.....	16, 56	" Rock Trout.....	31, 98
Silurids.....	17	Steelhead.....	15, 52
Silver Chub.....	18, 19, 61, 66	Stickleback, Alaska.....	22, 73
" -fin.....	18, 64	" Arctic.....	22, 72
" Hake.....	24, 77	" Brook.....	22, 72
" Lamprey.....	11, 38	" California.....	22, 73
" Minnow.....	18, 61	" Common.....	22, 73
" Salmon.....	15, 51	" Dwarf.....	22, 72
Silverside.....	23, 75	" Eastern.....	22, 73
" , Lake.....	23, 75	" Four-spined.....	22, 73
Siscowet.....	15, 53	" Nine-spined.....	22, 72
Skate, Barndoor.....	12, 42	" Partly Armoured.....	22, 73
" Big.....	12, 42	" Yellow.....	22, 73
" Common.....	12, 42	Sticklebacks.....	22
Skate-of-California, Big.....	12, 43	Sting Ray, Common.....	13, 43
Skil.....	31, 98	Stone Catfish.....	17, 57
Skipjack.....	11, 23, 16, 75	" Lugger.....	18, 60
Sleeper Shark.....	12, 41	" Roller.....	17, 18, 59, 60
Slimy Eel Pout.....	35, 111	" Sculpin.....	32, 100
Slippery Sole.....	30, 95	" Sucker.....	34, 109
Small Black Lamprey.....	11, 39	Strawberry Bass.....	25, 81
Small-mouth Black Bass.....	26, 83	Straw-coloured Minnow.....	18, 63
" Buffalo Fish.....	17, 58	Striped Bass.....	27, 86
Small-scaled Antimora.....	25, 79	Striped Surf-fish.....	27, 88

	PAGE		PAGE
Sturgeon, Common.....	13, 44	Trout, Marston.....	15, 54
" Green.....	13, 44	" Rainbow.....	15, 52
" Lake.....	13, 44	" Red Canadian.....	15, 54
" Short-nosed.....	13, 44	" Red Rock.....	31, 98
" White.....	13, 44	" Salmon.....	15, 53
Sturgeons.....	13	" Speckled.....	15, 53
Sucker, Black.....	17, 59	" Starry Rock.....	31, 98
" Chub.....	17, 59	Trout Perch.....	21, 71
" Columbia River.....	17, 59	" , Oregon.....	21, 71
" Common White.....	17, 59	True-boned Fishes.....	13-37
" Gray.....	17, 58	Trumpet Fish.....	22 (250:251) 73, 74
" Green's.....	34, 108	Tufted Blenny.....	35, 110
" Lake Carp.....	17, 58	Tullibee.....	15, 50
" Lump.....	34, 107	Tunny.....	28, 90
" Mountain.....	17, 58	Two-lined Flounder.....	29, 94
" Northern.....	17, 58	Violet Antimora.....	25, 79
" Spotted.....	17, 59	Viper-fish.....	16 (118:119), 56 (118:119)
" Stone.....	34, 109	Viper Fishes and their allies.....	16
Suck-fish.....	35, 110	Viviparous Perch.....	27, 88
Sucking-fish.....	30, 96	Wall-eyed Pollack.....	24, 78
Sunfish.....	37, 116	Warmouth.....	26, 82
" , Blue.....	26, 83	Weakfish, Common.....	27, 87
" , Common.....	26, 83	Western Goldeye.....	14, 46
" , Green.....	26, 82	White Bass.....	27, 86
" , Long-eared.....	26 (307:308) 82 (307:308)	Whitefish, Broad.....	14, 48
" , Red-spotted.....	26, 82	" Common.....	14, 49
Surf-fish.....	27 (346:347) SS (346:347)	" Coulter's.....	14, 48
" , Blue.....	27, 88	" Humpback.....	14, 49
" , Common.....	27, 88	" Labrador.....	14, 49
" , Striped.....	27, 88	" Least.....	15, 50
" , White.....	27, 88	" Richardson's.....	14, 48
Surf Fishes.....	27	" Rocky Mountain.....	14, 48
Surf Smelt.....	16, 55	" Round.....	14, 48
Swell Shark.....	11, 39	" Sault.....	14, 49
Sword-fish.....	28, 91	White Hake.....	25, 80
Tadpole Stone Cat.....	17, 58	White Minnow.....	18, 61
Tambor.....	31, 97	White-nosed Red Horse.....	17, 59
Tarpon.....	13, 45	White Perch.....	27, 87
Tautog.....	28, 89	White Sea Bass.....	27, 87
Teleosteans.....	13-37	White Sturgeon.....	13, 44
Teleostomes.....	13-37	White Surf-fish.....	27, 88
Tessellated Darter.....	26, 85	Whiting.....	24, 77
Three-bearded Rockling.....	25, 80	Window Pane.....	30, 95
Three-toothed Lamprey.....	11, 39	Winter Flounder.....	29, 94
Thresher.....	12, 40	Wolf Eel.....	36, 113
Tomcod.....	24, 78	Wolf-fish.....	21, 36 (539-541) 71, 112, 113 (540:541)
" , California.....	24, 78	" , Alaska.....	36, 113
Toothed Herring.....	14, 46	Wrymouth.....	36 (537:538), 112 (537:538)
Tope.....	12, 40	Yellow-backed Rock-fish.....	31, 97
Top Minnow.....	20, 69	Yellow Belly.....	26, 82
Trigger-fish.....	37, 116	Yellow Blenny.....	35, 110
Trout, Brook.....	15, 53	Yellow Catfish.....	17, 57
" Cutthroat.....	15, 52	Yellow Mackerel.....	28, 92
" Dolly Varden.....	15, 53	Yellow Perch.....	26, 84
" Great Lake.....	15, 53	Yellow-spotted Rock-fish.....	31, 97
" Kamloop's.....	15, 52	Yellow Stickleback.....	22, 73
" Loch Leven.....	15, 53		



